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THE

# NATURAL HISTORY

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BY THE LATE

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# CONTENTS

OF THE SIXTH VOLUME.

## BOOK XXXII.

REMEDIES DERIVED FROM AQUATIC ANIMALS.


| CHAP. | | Page |
|---|---|---|
| 1. | The power of Nature as manifested in antipathies. The echeneïs: two remedies .. .. .. .. .. | 1 |
| 2. | The torpedo: nine remedies .. .. .. .. .. | 4 |
| 3. | The sea-hare: five remedies .. .. .. .. | *ib.* |
| 4. | Marvels of the Red Sea .. .. .. .. .. | 5 |
| 5. | The instincts of fishes .. .. .. .. .. | 6 |
| 6. | Marvellous properties belonging to certain fishes .. .. | 8 |
| 7. | Places where fish eat from the hand .. .. .. | *ib.* |
| 8. | Places where fish recognize the human voice. Oracular responses given by fish .. .. .. .. .. | *ib.* |
| 9. | Places where bitter fish are found, salt, or sweet .. .. | 9 |
| 10. | When sea-fish were first eaten by the people of Rome. The ordinance of King Numa as to fish .. .. .. .. | 10 |
| 11. | Coral: forty-three remedies and observations .. .. | *ib.* |
| 12. | The antipathies and sympathies which exist between certain objects. The hatreds manifested by certain aquatic animals. The pastinaca; eight remedies. The galeos: fifteen remedies. The sur-mullet: fifteen remedies .. .. | 12 |
| 13. | Amphibious animals. Castoreum: sixty-six remedies and observations .. .. .. .. .. .. | 13 |
| 14. | The tortoise: sixty-six remedies and observations .. .. | 15 |
| 15. | Remedies derived from the aquatic animals, classified according to the respective diseases .. .. .. .. | 18 |
| 16. | Remedies for poisons, and for noxious spells. The dorade: four remedies. The sea-star: seven remedies .. .. | 19 |
| 17. | Remedies for the stings of serpents, for the bites of dogs, and for injuries inflicted by venomous animals. The sea-dragon: three remedies. Twenty-five remedies derived from salted fish. The sarda: one remedy. Eleven remedies derived from cybium .. .. .. .. .. | 20 |

CHAP. Page

18. The sea-frog: six remedies. The river-frog: fifty-two remedies. The bramble-frog: one remedy. Thirty-two observations on these animals .. .. .. .. .. 21

19. The enhydris: six remedies. The river-crab: fourteen remedies. The sea-crab: seven remedies. The river-snail: seven remedies. The coracinus: four remedies. The sea-pig: two remedies .. .. .. .. .. .. 23

20. The sea-calf: ten remedies. The muræna: one remedy. The hippocampus: nine remedies. The sea-urchin: eleven remedies .. .. .. .. .. .. .. 24

21. The various kinds of oysters: fifty-eight remedies and observations. Purples: nine remedies .. .. .. .. 25

22. Sea-weed: two remedies .. .. .. .. .. 28

23. Remedies for alopecy, change of colour in the hair, and ulcerations of the head. The sea-mouse: two remedies. The sea-scorpion: twelve remedies. The leech: seven remedies. The murex: thirteen remedies. The conchylium: five remedies .. .. .. .. .. .. .. 29

24. Remedies for diseases of the eyes and eyelids. Two remedies derived from the fat of fishes. The callionymus: three remedies. The gall of the coracinus: one remedy. The sæpia: twenty-four remedies. Ichthyocolla: five remedies *ib.*

25. Remedies for diseases of the ears. The batia: one remedy. The bacchus or myxon: two remedies. The sea-louse: two remedies .. .. .. .. .. .. .. 33

26. Remedies for tooth-ache. The dog-fish: four remedies. Whale's flesh .. .. .. .. .. 34

27. Remedies for lichens, and for spots upon the face. The dolphin: nine remedies. Coluthia or coryphia: three remedies. Halcyoneum: seven remedies. The tunny: five remedies .. .. .. .. .. .. .. 35

28. Remedies for scrofula, imposthumes of the parotid glands, quinzy, and diseases of the fauces. The mæna; thirteen remedies. The sea-scolopendra: two remedies. The saurus: one remedy. Shell-fish: one remedy. The silurus: fifteen remedies .. .. .. .. .. .. .. 37

29. Remedies for cough and diseases of the chest .. .. 38

30. Remedies for pains in the liver and side. The elongated conch: six remedies. The tethea: five remedies .. 39

31. Remedies for diseases of the bowels. Sea-wort: one remedy The myax: twenty-five remedies. The mitulus: eight remedies. Pelorides: one remedy. Scriphum: two remedies. The erythinus: two remedies .. .. .. *ib.*

32. Remedies for diseases of the spleen, for urinary calculi, and for affections of the bladder. The sole: one remedy. The turbot: one remedy. The blendius: one remedy. The sea-nettle: seven remedies. The pulmo marinus: six remedies. Onyches: four remedies. .. .. .. 42

33. Remedies for intestinal hernia, and for diseases of the rectum.

CHAP. Page

The water-snake: one remedy. The hydrus: one remedy. The mullet: one remedy. The pelamis: three remedies .. 44

34. Remedies for inflamed tumours, and for diseases of the generative organs. The sciæna: one remedy. The perch: four remedies. The squatina: three remedies. The smaris: three remedies .. .. .. .. .. .. *ib.*

35. Remedies for incontinence of urine. The ophidion: one remedy .. .. .. .. .. .. .. 46

36. Remedies for gout, and for pains in the feet. The beaver: four remedies. Bryon: one remedy .. .. .. *ib.*

37. Remedies for epilepsy .. .. .. .. .. .. 47

38. Remedies for fevers. The fish called asellus: one remedy. The phagrus: one remedy. The balæna: one remedy .. *ib.*

39. Remedies for lethargy, cachexy, and dropsy .. . .. 49

40. Remedies for burns and for erysipelas .. .. .. *ib.*

41. Remedies for diseases of the sinews .. .. .. .. 50

42. Methods of arresting hæmorrhage and of letting blood. The polyp: one remedy .. .. .. .. .. .. *ib.*

43. Methods of extracting foreign bodies from the flesh .. .. 51

44. Remedies for ulcers, carcinomata, and carbuncles .. .. 52

45. Remedies for warts, and for malformed nails. The glanis: one remedy .. .. .. .. .. .. .. 53

46. Remedies for female diseases. The glauciscus: one remedy .. *ib.*

47. Methods of removing superfluous hair. Depilatories .. 55

48. Remedies for the diseases of infants .. .. .. .. 56

49. Methods of preventing intoxication. The fish called rubellio: one remedy. The eel: one remedy. The grape-fish: one remedy .. .. .. .. .. .. .. 57

50. Antaphrodisiacs and aphrodisiacs. The hippopotamus: one remedy. The crocodile: one remedy .. .. .. *ib.*

51. Remedies for the diseases of animals .. .. .. .. *ib.*

52. Other aquatic productions. Adarca or calamochnos: three remedies. Reeds: eight remedies. The ink of the sæpia 58

53. The names of all the animals that exist in the sea, one hundred and seventy-six in number .. .. .. .. .. 59

54. Additional names of fishes found in the poem of Ovid .. 65

# BOOK XXXIII.

THE NATURAL HISTORY OF METALS.

1. Metals .. .. .. .. .. .. .. .. 68

2. Gold .. .. .. .. .. .. .. .. 69

3. What was the first recommendation of gold .. .. .. 71

4. The origin of gold rings .. .. .. .. .. *ib.*

5. The quantity of gold possessed by the ancients .. .. 75

6. The right of wearing gold rings .. .. .. .. 76

7. The decuries of the judges .. .. .. .. .. 82

| CHAP. | | Page |
|---|---|---|
| 8. | Particulars connected with the equestrian order | 83 |
| 9. | How often the name of the equestrian order has been changed | 85 |
| 10. | Gifts for military services, in gold and silver | 86 |
| 11. | At what period the first crown of gold was presented | *ib.* |
| 12. | Other uses made of gold, by females | 87 |
| 13. | Coins of gold. At what periods copper, gold, and silver, were first impressed. How copper was used before gold and silver were coined. What was the largest sum of money possessed by any one at the time of our first census. How often, and at what periods, the value of copper and of coined money has been changed | 88 |
| 14. | Considerations on man's cupidity for gold | 91 |
| 15. | The persons who have possessed the greatest quantity of gold and silver | 93 |
| 16. | At what period silver first made its appearance upon the arena and upon the stage | 94 |
| 17. | At what periods there was the greatest quantity of gold and silver in the treasury of the Roman people | 95 |
| 18. | At what period ceilings were first gilded | *ib.* |
| 19. | For what reasons the highest value is set upon gold | 96 |
| 20. | The method of gilding | 98 |
| 21. | How gold is found | 99 |
| 22. | Orpiment | 104 |
| 23. | Electrum | 105 |
| 24. | The first statues of gold | *ib.* |
| 25. | Eight remedies derived from gold | 106 |
| 26. | Chrysocolla | 107 |
| 27. | The use made of chrysocolla in painting | 108 |
| 28. | Seven remedies derived from chrysocolla | 110 |
| 29. | The chrysocolla of the goldsmiths, known also as santerna | *ib.* |
| 30. | The marvellous operations of nature in soldering metallic substances, and bringing them to a state of perfection | 111 |
| 31. | Silver | *ib.* |
| 32. | Quicksilver | 113 |
| 33. | Stimmi, stibi, alabastrum, larbasis, or platy-ophthalmon | 115 |
| 34. | Seven remedies derived from stimmi | *ib.* |
| 35. | The scoria of silver. Six remedies derived from it | 116 |
| 36. | Minium: for what religious purposes it was used by the ancients | 119 |
| 37. | The discovery and origin of minium | 120 |
| 38. | Cinnabaris | *ib.* |
| 39. | The employment of cinnabaris in painting | 121 |
| 40. | The various kinds of minium. The use made of it in painting | *ib.* |
| 41. | Hydrargyros. Remedies derived from minium | 124 |
| 42. | The method of gilding silver | *ib.* |
| 43. | Touchstones for testing gold | 125 |
| 44. | The different kinds of silver, and the modes of testing it | *ib.* |
| 45. | Mirrors | 126 |
| 46. | Egyptian silver | 128 |

CHAP. Page
47. Instances of immense wealth. Persons who have possessed the greatest sums of money .. .. .. .. 129
48. At what period the Roman people first made voluntary contributions .. .. .. .. .. .. .. 131
49. Instances of luxury in silver plate .. .. .. .. *ib.*
50. Instances of the frugality of the ancients in reference to silver plate .. .. .. .. .. .. .. 132
51. At what period silver was first used as an ornament for couches .. .. .. .. .. .. .. 134
52. At what period silver chargers of enormous size were first made. When silver was first used as a material for sideboards. When the sideboards called tympana were first introduced .. .. .. .. .. .. .. *ib.*
53. The enormous price of silver plate .. .. .. .. 135
54. Statues of silver .. .. .. .. .. .. 136
55. The most remarkable works in silver, and the names of the most famous artists in silver .. .. .. .. 138
56. Sil: The persons who first used it in painting and the method they adopted .. .. .. .. .. .. 140
57. Cæruleum .. .. .. .. .. .. .. 141
58. Two remedies derived from cæruleum .. .. .. .. 143

# BOOK XXXIV.

## THE NATURAL HISTORY OF METALS.

1. The ores of brass .. .. .. .. .. .. 147
2. The different kinds of copper .. .. .. .. .. 148
3. The Corinthian brass .. .. .. .. .. .. 149
4. The Delian brass .. .. .. .. .. .. 151
5. The Æginetan brass .. .. .. .. .. .. *ib.*
6. Stands for lamps .. .. .. .. .. .. 152
7. Ornaments of the temples made of brass .. .. . 153
8. Couches of brass .. .. .. .. .. .. *ib.*
9. Which was the first statue of a god made of brass at Rome. The origin of statues, and the respect paid to them .. 154
10. The different kinds and forms of statues. Statues at Rome with cuirasses .. .. .. .. .. .. 155
11. In honour of whom public statues were first erected: in honour of whom they were first placed on pillars: when the rostra were first erected .. .. .. .. 156
12. In honour of what foreigners public statues were erected at Rome .. .. .. .. . .. . 159
13. The first equestrian statues publicly erected at Rome, and in honour of what females statues were publicly erected there 160
14. At what period all the statues erected by private individuals were removed from the public places .. .. .. *ib.*
15. The first statues publicly erected by foreigners .. .. 161
16. That there were statuaries in Italy also at an early period .. 162
17. The immoderate prices of statues .. .. .. .. 163

| CHAP. | | Page |
|---|---|---|
| 18. | The most celebrated colossal statues in the city | 164 |
| 19. | An account of the most celebrated works in brass, and of the artists, 366 in number | 168 |
| 20. | The different kinds of copper and its combinations. Pyropus. Campanian copper | 189 |
| 21. | The method of preserving copper | 191 |
| 22. | Cadmia | *ib.* |
| 23. | Fifteen remedies derived from cadmia. Ten medicinal effects of calcined copper | 193 |
| 24. | The scoria of copper | 194 |
| 25. | Stomoma of copper: forty-seven remedies | *ib.* |
| 26. | Verdigris: Eighteen remedies | 195 |
| 27. | Hieracium | 197 |
| 28. | Scolex of copper: eighteen remedies | *ib.* |
| 29. | Chalcitis: seven remedies | 198 |
| 30. | Sory: three remedies | 199 |
| 31. | Misy: thirteen remedies | *ib.* |
| 32. | Chalcanthum, or shoemakers' black: sixteen remedies | 200 |
| 33. | Pompholyx | 202 |
| 34. | Spodos: five remedies | *ib.* |
| 35. | Fifteen varieties of antispodos | 203 |
| 36. | Smegma | 204 |
| 37. | Diphrys | *ib.* |
| 38. | Particulars relative to the Servilian triens | 205 |
| 39. | Iron ores | *ib.* |
| 40. | Statues of iron; chased works in iron | 206 |
| 41. | The different kinds of iron, and the mode of tempering it | *ib.* |
| 42. | The metal called live iron | 209 |
| 43. | Methods of preventing rust | *ib.* |
| 44. | Seven remedies derived from iron | 210 |
| 45. | Fourteen remedies derived from rust | 211 |
| 46. | Seventeen remedies derived from the scales of iron. Hygremplastrum | *ib* |
| 47. | The ores of lead | 212 |
| 48. | Stannum. Argentarium | 214 |
| 49. | Black lead | 215 |
| 50. | Fifteen remedies derived from lead | 216 |
| 51. | Fifteen remedies derived from the scoria of lead | 218 |
| 52. | Spodium of lead | *ib.* |
| 53. | Molybdæna: fifteen remedies | *ib.* |
| 54. | Psimithium, or ceruse; six remedies | 219 |
| 55. | Sandarach: eleven remedies | 220 |
| 56. | Arrhenicum | *ib.* |


# BOOK XXXV.

## AN ACCOUNT OF PAINTINGS AND COLOURS.


| | | |
|---|---|---|
| 1. | The honour attached to painting | 223 |
| 2. | The honour attached to portraits | 224 |

CHAP. Page
3. When shields were first invented with portraits upon them; and when they were first erected in public .. .. .. 227
4. When these shields were first placed in private houses .. *ib.*
5. The commencement of the art of painting. Monochrome paintings. The earliest painters .. .. .. .. .. 228
6. The antiquity of painting in Italy .. .. .. .. 229
7. Roman painters .. .. .. .. .. .. .. 230
8. At what period foreign paintings were first introduced at Rome 232
9. At what period painting was first held in high esteem at Rome, and from what causes. .. .. .. .. .. *ib.*
10. What pictures the Emperors have exhibited in public.. .. 233
11. The art of painting .. .. .. .. .. .. 234
12. Pigments other than those of a metallic origin. Artificial colours .. .. .. .. .. .. .. 235
13. Sinopis: eleven remedies .. .. .. .. .. *ib.*
14. Rubrica; Lemnian earth: four remedies .. .. .. 236
15. Egyptian earth .. .. .. .. .. .. 237
16. Ochra: remedies derived from rubrica .. .. .. *ib.*
17. Leucophoron .. .. .. .. .. .. *ib.*
18. Parætonium .. .. .. .. .. .. 238
19. Melinum: six remedies. Ceruse .. .. .. *ib.*
20. Usta .. .. .. .. .. .. .. 239
21. Eretria .. .. .. .. .. .. .. *ib.*
22. Sandarach .. .. .. .. .. .. .. *ib.*
23. Sandyx .. .. .. .. .. .. .. 240
24. Syricum .. .. .. .. .. .. .. *ib.*
25. Atramentum .. .. .. .. .. .. .. *ib.*
26. Purpurissum .. .. .. .. .. .. .. 242
27. Indicum .. .. .. .. .. .. .. *ib.*
28. Armenium: one remedy.. .. .. .. .. .. 243
29. Appianum .. .. .. .. .. .. .. *ib.*
30. Anularian white .. .. .. .. .. .. .. 244
31. Which colours do not admit of being laid on a wet coating .. *ib.*
32. What colours were used by the ancients in painting .. .. 245
33. At what time combats of gladiators were first painted and publicly exhibited.. .. .. .. .. .. .. 246
34. The age of painting; with the names of the more celebrated works and artists, four hundred and five in number .. *ib.*
35. The first contest for excellence in the pictorial art .. .. 248
36. Artists who painted with the pencil .. .. .. .. 249
37. Various other kinds of painting .. .. .. .. 268
38. An effectual way of putting a stop to the singing of birds .. 272
39. Artists who have painted in encaustics or wax, with either the cestrum or the pencil .. .. .. .. .. .. *ib.*
40. The first inventors of various kinds of painting. The greatest difficulties in the art of painting. The several varieties of painting. The first artist that painted ceilings. When arched roofs were first painted. The marvellous price of some pictures .. .. .. .. .. .. .. *ib.*

CHAP. Page
41. Encaustic painting .. .. .. .. .. .. 282
42. The colouring of tissues .. .. .. .. .. .. *ib.*
43. The inventors of the art of modelling .. .. .. .. 283
44. Who was the first to mould figures in imitation of the features of living persons, or of statues .. .. .. .. 284
45. The most famous modellers .. .. .. .. .. *ib.*
46. Works in pottery .. .. .. .. .. .. .. 286
47. Various kinds of earth. The Puteolan dust, and other earths of which cements like stone are made .. .. .. .. 288
48. Formacean walls .. .. .. .. .. .. .. 289
49. Walls of brick. The method of making bricks .. .. 290
50. Sulphur, and the several varieties of it: fourteen remedies .. 291
51. Bitumen, and the several varieties of it: twenty-seven remedies 293
52. Alumen, and the several varieties of it: thirty-eight remedies 294
53. Samian earth: three remedies .. .. .. .. .. 298
54. The various kinds of eretria .. .. .. .. .. *ib.*
55. The method of washing earths for medicinal purposes .. .. *ib.*
56. Chian earth: three remedies. Selinusian earth: three remedies. Pnigitis: nine remedies. Ampelitis: four remedies 299
57. Cretaceous earths used for scouring cloth. Cimolian earth: nine remedies. Sardinian earth. Umbrian earth. Saxum *ib.*
58. Argentaria. Names of freedmen who have either risen to power themselves, or have belonged to men of influence .. 301
59. The earth of Galata; of Clypea; of the Baleares; and of Ebusus 303

# BOOK XXXVI.

## THE NATURAL HISTORY OF STONES.

1. Luxury displayed in the use of various kinds of marble .. 305
2. Who was the first to employ marble in public buildings .. 306
3. Who was the first to erect columns of foreign marble at Rome 307
4. The first artists who excelled in the sculpture of marble, and the various periods at which they flourished. The Mausoleum in Caria. The most celebrated sculptors and works in marble, two hundred and twenty-five in number .. .. 308
5. At what period marble was first used in buildings .. .. 323
6. Who were the first to cut marble into slabs, and at what period 324
7. Who was the first to encrust the walls of houses at Rome with marble .. .. .. .. .. .. *ib.*
8. At what period the various kinds of marble came into use at Rome .. .. .. .. .. .. .. .. 325
9. The method of cutting marble into slabs. The sand used in cutting marble .. .. .. .. .. .. *ib.*
10. Stone of Naxos. Stone of Armenia .. .. .. .. 327
11. The marbles of Alexandria .. .. .. .. .. *ib.*
12. Onyx and alabastrites: six remedies .. .. .. .. 329

| CHAP. | | Page |
|---|---|---|
| 13. | Lygdinus; corallitic stone; stone of Alabanda; stone of Thebais; stone of Syene | 330 |
| 14. | Obelisks | 331 |
| 15. | The obelisk which serves as a dial in the Campus Martius | 334 |
| 16. | Marvellous works in Egypt. The pyramids | 335 |
| 17. | The Egyptian Sphinx | 336 |
| 18. | The Pharos | 339 |
| 19. | Labyrinths | *ib.* |
| 20. | Hanging gardens. A hanging city | 343 |
| 21. | The Temple of Diana at Ephesus | *ib.* |
| 22. | Marvels connected with other temples | 344 |
| 23. | The fugitive stone. The seven-fold echo. Buildings erected without the use of nails | *ib.* |
| 24. | Marvellous buildings at Rome, eighteen in number | 345 |
| 25. | The magnet: three remedies | 355 |
| 26. | Stone of Scyros | 357 |
| 27. | Sarcophagus, or stone of Assos: ten remedies | *ib.* |
| 28. | Chernites | *ib.* |
| 29. | Osseous stones. Palm stones. Corani. Black stones | 358 |
| 30. | Molar stones. Pyrites: seven remedies | 359 |
| 31. | Ostracites: four remedies. Amianthus: two remedies | 360 |
| 32. | Geodes: three remedies | *ib.* |
| 33. | Melitinus: six remedies | *ib.* |
| 34. | Gagates: six remedies | 361 |
| 35. | Spongites: two remedies | 362 |
| 36. | Phrygian stone | *ib.* |
| 37. | Hæmatites: five remedies. Schistos: seven remedies | *ib.* |
| 38. | Æthiopic hæmatites. Androdamas: two remedies. Arabian hæmatites. Miltites or hepatites. Anthracites | 363 |
| 39. | Aëtites. Taphiusian stone. Callimus | 364 |
| 40. | Samian stone: eight remedies | 365 |
| 41. | Arabian stone; six remedies | *ib.* |
| 42. | Pumice: nine remedies | 366 |
| 43. | Stones for mortars used for medicinal and other purposes. Etesian stone. Thebaic stone. Chalazian stone | 367 |
| 44. | Stone of Siphnos. Soft stones | 368 |
| 45. | Specular stones | *ib.* |
| 46. | Phengites | 369 |
| 47. | Whetstones | 370 |
| 48. | Tophus | 371 |
| 49. | The various kinds of silex | *ib.* |
| 50. | Other stones used for building | 372 |
| 51. | The various methods of building | *ib.* |
| 52. | Cisterns | |
| 53. | Quick-lime | *ib.* |
| 54. | The various kinds of sand. The combinations of sand with lime | *ib.* |
| 55. | Defects in building. Plasters for walls | 374 |
| 56. | Columns. The several kinds of columns | *ib.* |

CHAP. Page
57. Five remedies derived from lime .. .. .. .. 375
58. Maltha .. .. .. .. .. .. .. .. *ib.*
59. Gypsum .. .. .. .. .. .. .. .. 376
60. Pavements. The Asarotos œcos .. .. .. .. *ib.*
61. The first pavements in use at Rome .. .. .. .. 377
62. Terrace-roof pavements .. .. .. .. .. .. *ib.*
63. Græcanic pavements .. .. .. .. .. .. 378
64. At what period mosaic pavements were first invented. At what period arched roofs were first decorated with glass .. *ib.*
65. The origin of glass .. .. .. .. .. .. 379
66. The various kinds of glass, and the mode of making it .. 380
67. Obsian glass and Obsian stone .. .. .. .. .. 381
68. Marvellous facts connected with fire .. .. .. .. 383
69. Three remedies derived from fire and from ashes .. .. *ib.*
70. Prodigies connected with the hearth .. .. .. .. 384

# BOOK XXXVII.

THE NATURAL HISTORY OF PRECIOUS STONES.

1. The first use of precious stones .. .. .. .. .. 386
2. The jewel of Polycrates .. .. .. .. .. .. *ib.*
3. The jewel of Pyrrhus .. .. .. .. .. .. 387
4 Who were the most skilful lapidaries. The finest specimens of engraving on precious stones .. .. .. .. 389
5. The first dactyliothecæ at Rome .. .. .. .. .. 390
6. Jewels displayed at Rome in the triumph of Pompeius Magnus *ib.*
7. At what period murrhine vessels were first introduced at Rome. Instances of luxury in reference to them .. .. .. 392
8. The nature of murrhine vessels .. .. .. .. .. 393
9. The nature of crystal .. .. .. .. .. .. 394
10. Luxury displayed in the use of crystal. Remedies derived from crystal .. .. .. .. .. .. .. .. 395
11. Amber: the many falsehoods that have been told about it .. 397
12. The several kinds of amber: the remedies derived from it .. 402
13. Lyncurium: two asserted remedies .. .. .. .. 404
14. The various precious stones, classified according to their principal colours .. .. .. .. .. .. .. 505
15. Adamas: six varieties of it. Two remedies .. .. .. *ib.*
16. Smaragdus .. .. .. .. .. .. .. 408
17. Twelve varieties of the smaragdus .. .. .. .. 410
18. Defects in the smaragdus .. .. .. .. .. 411
19. The precious stone called tanos. Chalcosmaragdos .. .. 413
20. Beryls: eight varieties of them. Defects in beryls .. .. 414
21. Opals: seven varieties of them .. .. .. .. .. 415
22. Defects in opals: the modes of testing them .. .. .. 416
23. Sardonyx; the several varieties of it. Defects in the sardonyx 417

CHAP. Page
24. Onyx: the several varieties of it .. .. .. .. 419
25. Carbunculus: twelve varieties of it .. .. .. .. 420
26. Defects in carbunculus, and the mode of testing it .. .. 422
27. Anthracitis .. .. .. .. .. .. .. 423
28. Sandastros. Sandaresos . .. .. .. .. .. *ib.*
29. Lychnis: four varieties of it. .. .. .. .. .. 424
30. Carchedonia .. .. .. .. .. .. .. 425
31. Sarda: five varieties of it .. .. .. .. .. *ib.*
32. Topazos: two varieties of it .. .. .. .. .. 426
33. Callaina .. .. .. .. .. .. .. 427
34. Prasius: three varieties of it .. .. .. .. .. 429
35. Nilion .. .. .. .. .. .. .. *ib.*
36. Molochitis .. .. .. .. .. .. .. *ib.*
37. Iaspis: fourteen varieties of it. Defects found in iaspis .. 430
38. Cyanos: the several varieties of it .. .. .. .. 432
39. Sapphiros.. .. .. .. .. .. .. .. *ib.*
40. Amethystos: four varieties of it. Socondion. Sapenos. Pharanitis. Aphrodites blepharon, anteros, or hæderos .. *ib.*
41. Hyacinthos .. .. .. .. .. .. .. 434
42. Chrysolithos: seven varieties of it .. .. .. .. *ib.*
43. Chryselectrum .. .. .. .. .. .. 435
44. Leucochrysos: four varieties of it .. .. .. .. *ib.*
45. Melichrysos. Xuthon .. .. .. .. .. 436
46. Pæderos, sangenon, or tenites .. .. .. .. .. *ib.*
47. Asteria .. .. .. .. .. .. .. 437
48. Astrion .. .. .. .. .. .. .. *ib.*
49. Astriotes .. .. .. .. .. .. .. *ib.*
50. Astrobolos .. .. .. .. .. .. 438
51. Ceraunia: four varieties of it .. .. .. .. .. *ib.*
52. Iris: two varieties of it .. .. .. .. .. .. *ib.*
53. Leros .. .. .. .. .. .. .. .. 439
54. Achates: the several varieties of it. Acopos: the remedies derived from it. Alabastritis: the remedies derived from it. Alectoria. Androdamas. Argyrodamas. Antipathes. Arabica. Aromatitis. Asbestos. Aspisatis. Atizöe. Augetis. Amphidanes or chrysocolla. Aphrodisiaca. Apsyctos. Ægyptilla .. .. .. .. .. .. .. *ib.*
55. Balanites. Batrachitis. Baptes. Beli oculus. Belus. Baroptenus or barippe. Botryitis. Bostrychitis. Bueardia. Brontea. Bolos .. .. .. .. .. .. 443
56. Cadmitis. Callais. Capnitis. Cappadocia. Callaica. Catochitis. Catoptritis. Cepitis or Cepolatitis. Ceramitis. Cinædia. Ceritis. Circos. Corsoïdes. Coralloachates. Corallis. Crateritis. Crocallis. Cyitis. Chalcophonos. Chelidonia. Chelonia. Chelonitis. Chloritis. Choaspitis. Chrysolampis. Chrysopis. Ceponides .. .. .. 444
57. Daphnea. Diadochos. Diphyes. Dionysias. Draconitis . 447
58. Encardia or ariste. Enorchis. Exebenus. Erythallis. Erotylos, amphicomos, or hieromnemon. Eumeces. Eumithres. Eupetalos. Eureos. Eurotias. Eusebes. Epimelas 448

CHAP. Page
59. Galaxias. Galactitis, leucogæa, leucographitis, or synnephitis. Gallaica. Gassinade. Glossopetra. Gorgonia. Goniæa.. 449
60. Heliotropium. Hephæstitis. Hermuaidoion. Hexecontalithos. Hieracitis. Hammitis. Hammonis cornu. Hormiscion. Hyænia. Hæmatitis .. .. .. .. 450
61. Idæi dactyli. Icterias. Jovis gemma. Indica. Ion .. 452
62. Lepidotis. Lesbias. Leucophthalmos. Leucopœcilos. Libanochrus. Limoniatis. Liparea. Lysimachos. Leucochrysos .. .. .. .. .. .. .. *ib.*
63. Memnonia. Media. Meconitis. Mithrax. Morochthos. Mormorion or promnion. Murrhitis. Myrmecias. Myrsinitis. Mesoleucos. Mesomelas .. .. .. .. 453
64. Nasamonitis. Nebritis. Nipparene .. .. .. .. 454
65. Oica. Ombria or notia. Onocardia. Oritis or sideritis. Ostracias. Ostritis. Ophicardelon. Obsian stone .. *ib.*
66. Panchrus. Pangonus. Paneros or panerastos. Pontica: four varieties of it. Phloginos or chrysitis. Phœnicitis. Phycitis. Perileucos. Pæanitis or gæanis .. .. .. 455
67. Solis gemma. Sagda. Samothracia. Sauritis. Sarcitis. Selenitis. Sideritis. Sideropœcilos. Spongitis. Synodontitis. Syrtitis. Syringitis .. .. .. .. .. 456
68. Trichrus. Thelyrrhizos. Thelycardios or mulc. Thracia: three varieties of it. Tephritis. Tecolithos .. .. 457
69. Veneris crines. Veientana .. .. .. .. .. 458
70. Zathene. Zmilampis. Zoraniscæa .. .. .. .. *ib.*
71. Precious stones which derive their names from various parts of the human body. Hepatitis. Steatitis. Adadunephros. Adaduophthalmos. Adadudactylos. Triophthalmos .. *ib.*
72. Precious stones which derive their names from animals. Carcinias. Echitis. Scorpitis. Scaritis. Triglitis. Ægophthalmos. Hyophthalmos. Geranitis. Hieracitis. Aëtitis. Myrmecitis. Cantharias. Lycophthalmos. Taos. Timictonia 459
73. Precious stones which derive their names from other objects. Hammochrysos. Cenchritis. Dryitis. Cissitis. Narcissitis. Cyamias. Pyren. Phœnicitis. Chalazias. Pyritis. Polyzonos Astrapæa. Phlogitis. Anthracitis. Enhygros. Polythrix. Leontios. Pardalios. Drosolithos. Melichrus. Melichloros. Crocias. Polias. Spartopolias. Rhoditis. Chalcitis. Sycitis. Bostrychitis. Chernitis. Anancitis. Synochitis. Dendritis .. .. .. .. .. *ib.*
74. Precious stones that suddenly make their appearance. Cochlides .. .. .. .. .. .. .. 461
75. The various forms of precious stones .. .. .. .. 462
76. The methods of testing precious stones.. .. .. .. 463
77. A comparative view of Nature as she appears in different countries. The comparative values of things. .. .. 464

GENERAL INDEX .. .. .. .. .. .. .. 469

# NATURAL HISTORY OF PLINY.

## BOOK XXXII.[1]

### REMEDIES DERIVED FROM AQUATIC ANIMALS.

CHAP. 1. (1.)—THE POWER OF NATURE AS MANIFESTED IN ANTIPATHIES. THE ECHENEÏS: TWO REMEDIES.

FOLLOWING the proper order of things, we have now arrived at the culminating point of the wonders manifested to us by the operations of Nature. And even at the very outset, we find spontaneously presented to us an incomparable illustration of her mysterious powers: so much so, in fact, that beyond it we feel ourselves bound to forbear extending our enquiries, there being nothing to be found either equal or analogous to an element in which Nature quite triumphs over herself, and that, too, in such numberless ways. For what is there more unruly than the sea, with its winds, its tornadoes, and its tempests? And yet in what department of her works has Nature been more seconded by the ingenuity of man, than in this, by his inventions of sails and of oars? In addition to this, we are struck with the ineffable might displayed by the Ocean's tides,

[1] It is in the last six Books of Pliny, and those only, we regret to say, that we are enabled to avail ourselves of the new readings of the Bamberg MS., which has been so admirably collated by M. Ian. In a vast number of passages previously looked upon as hopelessly corrupt, or else not at all suspected of being in a mutilated state, this MS. supplies words and clauses, the existence of which in the original was hitherto unknown; indeed by its aid the indefatigable Sillig has been enabled, if we may be allowed the term, almost to *rewrite* the last six Books of Pliny. From a perusal of these new readings, as Dr. Smith has justly remarked, we have reason to infer "that the text of the earlier Books is still in a very defective state, and that much of the obscurity of Pliny may be traced to this cause."

as they constantly ebb and flow, and so regulate the currents of the sea as though they were the waters of one vast river.

And yet all these forces, though acting in unison, and impelling in the same direction, a single fish, and that of a very diminutive size—the fish known as the "echeneïs"[2]—possesses the power of counteracting. Winds may blow and storms may rage, and yet the echeneïs controls their fury, restrains their mighty force, and bids ships stand still in their career; a result which no cables, no anchors, from their ponderousness quite incapable of being weighed, could ever have produced! A fish bridles the impetuous violence of the deep, and subdues the frantic rage of the universe—and all this by no effort of its own, no act of resistance on its part, no act at all, in fact, but that of adhering to the bark! Trifling as this object would appear, it suffices to counteract all these forces combined, and to forbid the ship to pass onward in its way! Fleets, armed for war, pile up towers and bulwarks on their decks, in order that, upon the deep even, men may fight from behind ramparts as it were. But alas for human vanity!—when their prows, beaked as they are with brass and with iron,[3] and armed for the onset, can thus be arrested and rivetted to the spot by a little fish, no more than some half foot in length!

At the battle of Actium, it is said, a fish of this kind stopped the prætorian ship[4] of Antonius in its course, at the moment that he was hastening from ship to ship to encourage and exhort his men, and so compelled him to leave it and go on board another. Hence it was, that the fleet of Cæsar gained the advantage[5] in the onset, and charged with a redoubled impetuosity. In our own time, too, one of these fish arrested the ship of the Emperor[6] Caius in its course, when he was returning from Astura to Antium:[7] and thus, as the result proved, did an insignificant fish give presage of great events; for no sooner had the emperor returned to Rome than he was pierced by the weapons of his own soldiers. Nor did this sudden stoppage of the ship

[2] The Echeneis remora of Linnæus. See B. ix. c. 41.

[3] He alludes to the "rostra," or metal beaks, with which the prows of the ships of war were furnished.

[4] An absurd tradition, no doubt, invented, probably, to palliate the disgrace of his defeat.

[5] From the delay caused by the stoppage of the prætorian ship.

[6] Caligula.

[7] For Astura and Antium, see B. iii. c. 9.

long remain a mystery, the cause being perceived upon finding that, out of the whole fleet, the emperor's five-banked galley was the only one that was making no way. The moment this was discovered, some of the sailors plunged into the sea, and, on making search about the ship's sides, they found an echeneïs adhering to the rudder. Upon its being shown to the emperor, he strongly expressed his indignation that such an obstacle as this should have impeded his progress, and have rendered powerless the hearty endeavours of some four hundred men. One thing, too, it is well known, more particularly surprised[8] him, how it was possible that the fish, while adhering to the ship, should arrest its progress, and yet should have no such power when brought on board.

According to the persons who examined it on that occasion, and who have seen it since, the echeneïs bears a strong resemblance to a large slug.[9] The various opinions entertained respecting it we have already[10] noticed, when speaking of it in the Natural History of Fishes. There is no doubt, too, that all fish of this kind are possessed of a similar power; witness, for example, the well-known instance of the shells[11] which are still preserved and consecrated in the Temple of Venus at Cnidos, and which, we are bound to believe, once gave such striking evidence of the possession of similar properties. Some of our own authors have given this fish the Latin name of "mora."[12] It is a singular thing, but among the Greeks we find writers who state that, worn as an amulet, the echeneïs has the property,[13] as already mentioned, of preventing miscarriage, and of reducing procidence of the uterus, and so permitting the fœtus to reach maturity: while others, again, assert that, if it is preserved in salt and worn as an amulet, it will facilitate parturition; a fact to which it is indebted for

[8] And well it might surprise him. If there was any foundation at all for the story, there can be little doubt that a trick was played for the purpose of imposing upon Caligula's superstitious credulity, and that the rowers as well as the diving sailors were privy to it.

[9] "Limax." A singular comparison, apparently.

[10] In B. ix. c. 41.

[11] See B. ix. c. 41, where he is speaking of a murex, a fish which bears no such affinity to the remora as to warrant our author's expression, "Idem valere omnia ea genera."

[12] Properly meaning "delay." "Remora" is another reading, and perhaps a better one, as the word is found in Plautus.

[13] In B. ix. c. 41.

another name which it bears, "odinolytes."[14] Be all this as it may, considering this most remarkable fact of a ship being thus stopped in its course, who can entertain a doubt as to the possibility of any manifestation of her power by Nature, or as to the effectual operation of the remedies which she has centred in her spontaneous productions?

CHAP. 2.—THE TORPEDO: NINE REMEDIES.

And then, besides, even if we had not this illustration by the agency of the echeneïs, would it not have been quite sufficient only to cite the instance of the torpedo,[15] another inhabitant also of the sea, as a manifestation of the mighty powers of Nature? From a considerable distance even, and if only touched with the end of a spear or staff, this fish has the property of benumbing even the most vigorous arm, and of rivetting the feet of the runner, however swift he may be in the race. If, upon considering this fresh illustration, we find ourselves compelled to admit that there is in existence a certain power which, by the very exhalations[16] and, as it were, emanations therefrom, is enabled to affect the members of the human body,[17] what are we not to hope for from the remedial influences which Nature has centred in all animated beings?

CHAP. 3.—THE SEA HARE: FIVE REMEDIES.

No less wonderful, too, are the particulars which we find stated relative to the sea-hare.[18] Taken with the food or drink, it is a poison to some persons; while to others, again, the very sight of it is venomous.[19] Indeed, if a woman in a

[14] From λύειν τὰς ὠδῖνας, "to release from the pains of childbirth."

[15] See B. ix. c. 67.

[16] Ajasson remarks that it was owing probably to this opinion that it was formerly the belief, that by holding the breath a person could render himself proof against the shock of the torpedo; a precaution recommended by Kæmpfer, in his "Amenitates Exoticæ," p. 514. Ed. 1712.

[17] "Quâdam aurâ sui corporis adficiat membra" seems a preferable reading to "Quâdam aurâ corporis sui adficiat membra," as given by the Bamberg MS., and adopted by Sillig.

[18] See B. ix. c. 72, and the Note.

[19] A fabulous story, Ajasson remarks, but one that was commonly believed in the 16th and 17th centuries. Gessner, however, a conscientious enquirer into the mysteries of Nature, asserts (*de Aquatilibus*, p. 563) that, to his own knowledge, the sight of this fish was productive of the symptoms here mentioned. Beckmann reckons the Aplysia depilans (with which

state of pregnancy so much as looks upon one of these fishes, she is immediately seized with nausea and vomiting—a proof that the injury has reached the stomach—and abortion is the ultimate result. The proper preservative against these baneful effects is the male fish, which is kept dried for the purpose in salt, and worn in a bracelet upon the arm. And yet this same fish, while in the sea, is not injurious, by its contact even. The only animal that eats it without fatal consequences, is the mullet;[20] the sole perceptible result being that its flesh is rendered more tender thereby, but deteriorated in flavour, and consequently not so highly esteemed.

Persons when poisoned[21] by the sea-hare smell strongly of the fish—the first sign, indeed, by which the fact of their having been so poisoned is detected. Death also ensues at the end of as many days as the fish has lived: hence it is that, as Licinius Macer informs us, this is one of those poisons which have no definite time for their operation. In India,[22] we are assured, the sea-hare is never taken alive; and, we are told that, in those parts of the world, man, in his turn, acts as a poison upon the fish, which dies instantly in the sea, if it is only touched with the human finger. There, like the rest of the animals, it attains a much larger size than it does with us.

### CHAP. 4.—MARVELS OF THE RED SEA.

Juba, in those books descriptive of Arabia, which he has dedicated to Caius Cæsar, the son of Augustus, informs us that there are mussels[23] on those coasts, the shells of which are capable of holding three semisextarii; and that, on one occasion, a whale,[24] six hundred feet in length and three hundred and sixty feet broad,[25] made its way up a river of Arabia,

the Sea-hare of the ancients is identified) in the number of the animal poisons, and remarks that (as we find stated by Cœlius Rhodiginus, B. xxvi. c. 30) the Emperor Titus was dispatched by the agency of this poison, administered to him by the direction of his brother Domitian. *Hist. Lev.* vol. I. p. 51. *Bohn's Ed.*

[20] Athenæus says, B. viii., that the Scarus pursues it and devours it.

[21] "Quibus impactus est." A curious expression; if indeed it is the correct reading.

[22] See B. ix. c. 72.

[23] Mituli. See B. ix. c. 74.

[24] "Cetos."

[25] Ajasson remarks, in confutation of this story, that there are few rivers in Arabia of such a breadth.

the blubber of which was bought up by the merchants there. He tells us, too, that in those parts they anoint their camels with the grease of all kinds of fish, for the purpose of keeping off the gad-flies[26] by the smell.

CHAP. 5. (2.)—THE INSTINCTS OF FISHES.

The statements which Ovid has made as to the instincts of fish, in the work[27] of his known as the "Halieuticon,"[28] appear to me truly marvellous. The scarus,[29] for instance, when enclosed in the wicker kype, makes no effort to escape with its head, nor does it attempt to thrust its muzzle between the oziers; but turning its tail towards them, it enlarges the orifices with repeated blows therefrom, and so makes its escape backwards. Should,[30] too, another scarus, from without, chance to see it thus struggling within the kype, it will take the tail of the other in its mouth, and so aid it in its efforts to escape. The lupus,[31] again, when surrounded with the net, furrows[32] the sand with its tail, and so conceals itself, until the net has passed over it. The muræna,[33] trusting in the slippery smoothness[34] of its rounded back, boldly faces the meshes of the net, and by repeatedly wriggling its body, makes its escape. The polyp[35] makes for the hooks, and, without swallowing the bait, clasps it with its feelers; nor does it quit its hold until it has eaten off the bait, or perceives itself being drawn out of the water by the rod.

The mullet,[36] too, is aware[37] that within the bait there is a hook concealed, and is on its guard against the ambush; still however, so great is its voracity, that it beats the hook with its tail, and strikes away from it the bait. The lupus,[38] again,

[26] See B. xi. c. 34.

[27] Of this work, begun by Ovid during his banishment in Pontus, and probably never completed, only a fragment of one hundred and thirty-two lines has come down to us. Pliny again makes reference to it, in the last Chapter of the present Book.

[28] Or "Treatise on Fishes." [29] See B. ix. c. 69, and B. xi. c. 61.

[30] Quoted from the Halieuticon.

[31] The wolf fish. The Perca labrax of Linnæus. See B. ix. cc. 24, 28, 74, 79, and B. x. c. 89.

[32] From the Halieuticon of Ovid.

[33] See B. ix. cc. 14, 35, 39, 48, 74, 79, 81.

[34] From the Halieuticon. [35] From the Halieuticon.

[36] See B. ix. cc. 21, 26, 67. [37] From the Halieuticon.

[38] From the Halieuticon. See Note 31 above, if indeed the same fish is meant. See also B. xxxi. c. 44, and the Note.

shows less foresight and address, but repentance at its imprudence arms it with mighty strength; for, when caught by the hook, it flounders from side to side, and so widens the wound, till at last the insidious hook falls from its mouth. The muræna[39] not only swallows the hook, but catches at the line with its teeth, and so gnaws it asunder. The anthias,[40] Ovid says, the moment it finds itself caught by the hook, turns its body with its back downwards, upon which there is a sharp knife-like fin, and so cuts the line asunder.

According to Licinius Macer, the muræna is of the female sex only, and is impregnated by serpents, as already[42] mentioned; and hence it is that the fishermen, to entice it from its retreat, and catch it, make a hissing noise in imitation of the hissing of a serpent. He states, also, that by frequently beating the water it is made to grow fat, that a blow with a stout stick will not kill it, but that a touch with a stalk of fennel-giant[43] is instantly fatal. That in the case of this animal, the life is centred in the tail, there can be no doubt, as also that it dies immediately on that part of the body being struck; while, on the other hand, there is considerable difficulty in killing it with a blow upon the head. Persons who have come in contact with the razor-fish[44] smell of iron.[45] The hardest of all fishes, beyond a doubt, is that known as the "orbis:"[46] it is spherical, destitute[46*] of scales, and all head.[47]

[39] From the Halieuticon. [40] See B. ix. c. 85.

[42] In B. ix. c. 39. Aristotle, however, as there stated, was not of the same opinion.

[43] See B. xx. c. 98.

[44] "Novacula piscis." Pliny is the only ancient author that mentions this fish. There are numerous varieties of it, among which the best known are the Coryphæna novacula of Linnæus, the Rason of the Mediterranean, highly esteemed as an article of food, and the Coryphæna pentedactyle of Bloch, identical with the *Hemiptéronote à cinq taches*, of Lacépède.

[45] An absurdity, owing, no doubt, to its name.

[46] Or "globe-fish." The Mola, orbis marinus, or sun-fish of modern Natural History, the *Lune de mer*, or *poisson-lune* of the French. Though the skin is harsh and tough, there is no firmness in its flesh, which is of a gluey consistency.

[46*] In reality it *has* scales, but they are almost imperceptible, from their minuteness.

[47] Or rather, as Dalechamps observes, "all belly."

CHAP. 6. — MARVELLOUS PROPERTIES BELONGING TO CERTAIN FISHES.

Trebius Niger informs us that whenever the loligo[48] is seen darting above the surface of the water, it portends a change of weather: that the xiphias,[49] or, in other words, the sword-fish, has a sharp-pointed muzzle, with which it is able to pierce the sides of a ship and send it to the bottom: instances of which have been known near a place in Mauritania, known as Cotte, not far from the river Lixus.[50] He says, too, that the loligo sometimes darts above the surface, in such vast numbers, as to sink the ships upon which they fall.

CHAP. 7.—PLACES WHERE FISH EAT FROM THE HAND.

At many of the country-seats belonging to the Emperor the fish eat[51] from the hand: but the stories of this nature, told with such admiration by the ancients, bear reference to lakes formed by Nature, and not to fish-preserves; that at Elorus, a fortified place in Sicily, for instance, not far from Syracuse. In the fountain, too, of Jupiter, at Labranda,[52] there are eels which eat from the hand, and wear ear-rings,[53] it is said. The same, too, at Chios, near the Old Men's Temple[54] there; and at the Fountain of Chabura in Mesopotamia, already mentioned.[55]

CHAP. 8.—PLACES WHERE FISH RECOGNIZE THE HUMAN VOICE. ORACULAR RESPONSES GIVEN BY FISH.

At Myra, too, in Lycia, the fish in the Fountain of Apollo,

[48] See B. ix. cc. 44, 45, and B. xviii. c. 87.

[49] See B. ix. cc. 1, 21 and c. 53 of the present Book. There are two varieties of it, the Xiphias gladius of Bloch and Lacépède, and the Xiphias machæra of Shaw.

[50] See B. v. c. 1.

[51] Martial, B. iv. Ep. 30, speaks of this being the case at the fish-ponds of Baiæ, where the Emperor's fish were in the habit of making their appearance when called by name.

[52] A village of Caria, celebrated for its sanctuary of Zeus Stratios. Ælian, Hist. Anim. B. xii. c. 30, says that there was a spring of clear water, within the sanctuary, which contained fish with golden necklaces and rings.

[53] "Inaures." He probably means ornaments suspended from the gills, a thing which, in the case of eels, might be done.

[54] "Senum delubrum." Ælian speaks of tame fish in the Old Men's Harbour (λιμήν) at Chios.

[55] In B. xxxi. c. 22.

known as Surium, appear and give oracular presages, when thrice summoned by the sound of a flute. If they seize the flesh thrown to them with avidity, it is a good omen for the person who consults them; but if, on the other hand, they flap at it with their tails, it is considered an evil presage. At Hierapolis[56] in Syria, the fish in the Lake of Venus there obey the voice of the officers of the temple: bedecked with ornaments of gold, they come at their call, fawn upon them while they are scratched, and open their mouths so wide as to admit of the insertion of the hands.

Off the Rock of Hercules, in the territory of Stabiæ[57] in Campania, the melanuri[58] seize with avidity bread that is thrown to them in the sea, but they will never approach any bait in which there is a hook concealed.

### CHAP. 9. — PLACES WHERE BITTER FISH ARE FOUND, SALT, OR SWEET.

Nor is it by any means the least surprising fact, that off the island of Pele,[59] the town of Clazomenæ,[60] the rock[61] [of Scylla] in Sicily, and in the vicinity of Leptis in Africa,[62] Eubœa, and Dyrrhachium,[63] the fish are bitter. In the neighbourhood of Cephallenia, Ampelos, Paros, and the rocks of Delos, the fish are so salt by nature that they might easily be taken to have been pickled in brine. In the harbour, again, of the last-mentioned island, the fish are sweet: differences, all of them, resulting, no doubt, from the diversity[64] of their food.

Apion says that the largest among the fishes is the sea-pig,[65] known to the Lacedæmonians as the "orthagoriscos;"

[56] The seat of the worship of the half-fish goddess Addirga, Atergatis, Astarte, or Derceto. See B. v. c. 19. The original names of Hierapolis (the Holy City) were Bambyce and Mabog.

[57] See B. iii. c. 9.

[58] A Greek name signifying "black-tails." See c. 53 of this Book. Holland translates it "the black-tailed ruffe" or "sea-bream."

[59] See B. v. c. 38.

[60] See B. v. c. 31, and B. xxxi. c. 43.

[61] See B. iii. c. 14.

[62] See B. v. cc. 3, 4.

[63] See B. iii. cc. 16, 26.

[64] Ajasson thinks that this may possibly be true to some small extent.

[65] Identical with the fish called "orbis," already mentioned in c. 5 of this Book. Ajasson remarks that though these fish have been known to weigh as much as three hundred pounds, there are many others which grow to a larger size, the sturgeon, and the silurus, for instance.

he states also that it grunts[66] like a hog when taken. These accidental varieties in the natural flavour of fish—a thing that is still more surprising—may, in some cases, be owing to the nature of the locality; an apposite illustration of which is, the well-known fact that, at Beneventum[67] in Italy, salted provisions of all kinds require[68] to be salted over again.

CHAP. 10.—WHEN SEA-FISH WERE FIRST EATEN BY THE PEOPLE OF ROME. THE ORDINANCE OF KING NUMA AS TO FISH.

Cassius Hemina informs us that sea-fish have been in use at Rome from the time of its foundation. I will give his own words, however, upon the subject:—"Numa ordained that fish without[69] scales should not be served up at the Festivals of the Gods; a piece of frugality, the intention of which was, that the banquets, both public and private, as well as the repasts laid before the couches[70] of the gods, might be provided at a smaller expense than formerly: it being also his wish to preclude the risk that the caterers for the sacred banquets would spare no expense in buying provisions, and so forestall the market."

CHAP. 11.—CORAL: FORTY-THREE REMEDIES AND OBSERVATIONS.

In the same degree that people in our part of the world set a value upon the pearls of India—a subject on which we have already spoken[71] on the appropriate occasion at sufficient length — do the people of India prize coral: it being the prevailing taste in each nation respectively that constitutes the value of things. Coral is produced in the Red Sea also,

[66] Ajasson thinks that this notion may possibly have been derived from the name, which not improbably was given to it from the spongy and oleaginous nature of the flesh.

[67] See B. iii. c. 16.

[68] Owing, perhaps, to the moisture of the atmosphere.

[69] We learn from Festus, that he prohibited the use also of the scarus, a fish *with* scales.

[70] "Ad pulvinaria." Literally, "At the cushions;" in reference to the practice of placing the statues of the gods upon pillows at the Lectisternia, which were sacrifices in the nature of feasts, at which images of the gods were placed reclining on couches, with tables and food before them, as if they were really partaking of the things offered in sacrifice. Livy, B. v. c. 13. gives an account of a Lectisternium celebrated with great pomp, which he asserts to have been the first instance of the practice.

[71] In B. ix. c. 54.

but of a more swarthy hue than ours. It is to be found also in the Persian Gulf, where it is known by the name of "iace." But the most highly-esteemed of all, is that produced in the vicinity of the islands called Stœchades,[72] in the Gallic Gulf, and near the Æolian Islands and the town of Drepana in the Sea of Sicily. Coral is to be found growing, too, at Graviscæ, and off the coast of Neapolis in Campania: as also at Erythræ, where it is intensely red, but soft, and consequently little valued.

Its form is that of a shrub,[73] and its colour green: its berries are white and soft while under water, but the moment they are removed from it, they become hard and red, resembling the berries of cultivated cornel in size and appearance. They say that, while alive, if it is only touched by a person, it will immediately become as hard as stone; and hence it is that the greatest pains are taken to prevent this, by tearing it up from the bottom with nets, or else cutting it short with a sharp-edged instrument of iron: from which last circumstance it is generally supposed to have received its name of "curalium."[74] The reddest coral and the most branchy is held in the highest esteem; but, at the same time, it must not be rough or hard like stone; nor yet, on the other hand, should it be full of holes or hollow.

The berries of coral are no less esteemed by the men in India than are the pearls of that country by the females among us: their soothsayers, too, and diviners look upon coral as an amulet endowed with sacred properties,[75] and a sure preservative against all dangers: hence it is that they equally value it as an ornament and as an object of devotion. Before it was known in what estimation coral was held by the people of India, the Gauls were in the habit of adorning their swords,

[72] See B. iii. c. 11.

[73] Theophrastus reckons coral among the precious stones, and the Pseudo-Orpheus among the minerals. Pliny would seem to be at a loss whether to consider it as an animal or a vegetable. In reality it is the production of marine organized bodies of an arborescent habit, known as Corallina, with jointed stems, supported on a kind of root divided into branches, which are likewise jointed.

[74] Because κειρῆται, it is "cut short" in the sea, a far-fetched derivation, apparently.

[75] Solinus informs us that Zoroaster attributed certain mysterious properties to coral.

shields, and helmets with it; but at the present day, owing to the value set upon it as an article of exportation, it has become so extremely rare, that it is seldom to be seen even in the regions that produce it.. Branches of coral, hung at the neck of infants,[76] are thought to act as a preservative against danger. Calcined, pulverized, and taken in water, coral gives relief to patients suffering from griping pains in the bowels, affections of the bladder, and urinary calculi. Similarly taken in wine, or, if there are symptoms of fever, in water, it acts as a soporific. It resists the action of fire a considerable time before it is calcined.

There is also a statement made that if this medicament is frequently taken internally, the spleen will be gradually consumed. Powdered coral, too, is an excellent remedy for patients who bring up or spit blood. Calcined coral is used as an ingredient in compositions for the eyes, being productive of certain astringent and cooling effects: it makes flesh, also, in the cavities left by ulcers, and effaces scars upon the skin.

CHAP. 12.—THE ANTIPATHIES AND SYMPATHIES WHICH EXIST BETWEEN CERTAIN OBJECTS. THE HATREDS MANIFESTED BY CERTAIN AQUATIC ANIMALS. THE PASTINACA: EIGHT REMEDIES. THE GALEOS: FIFTEEN REMEDIES. THE SUR-MULLET: FIFTEEN REMEDIES.

In reference to that repugnance which exists between certain things, known to the Greeks as "antipathia," there is nothing more venomous[77] than the pastinaca, a sea-fish which kills trees even with its sting, as already[78] stated. And yet, poisonous as it is, the galeos[79] pursues it; a fish which,

[76] A practice still retained, though the original intention of it has been lost sight of. As to the form of the coral now used by infants, see Note 85 to B. xxviii. c. 7.

[77] In reality, the Pastinaca or Sting-ray is *not* venomous; but the wounds inflicted by the sting in its tail are highly dangerous, from their tendency to gangrene

[78] In B. ix. c. 72. As Ajasson remarks, it is quite possible that the sting of the Pastinaca might penetrate to the heart of a young tree, and so kill it; but that is no proof of its being poisonous. See also B. ix. cc. 40, 67.

[79] Or Mustela, the sea-weasel, mentioned in B. ix. c. 29, and in c. 37 of the present Book. See also Note 12 to B. ix. c. 29. Ajasson is of opinion that under the names of "Galeos" and "Mustela," the ancients confounded the Squalus galeus and the Squalus mustelus of Linnæus.

though it attacks other marine animals as well, manifests an enmity to the pastinaca in particular, just as on dry land the weasel does to serpents; with such avidity does it go in pursuit of what is poisonous even! Persons stung by the pastinaca find a remedy in the flesh of the galeos, as also in that of the sur-mullet and the vegetable production known as laser.[80]

CHAP. 13. (3).—AMPHIBIOUS ANIMALS. CASTOREUM: SIXTY-SIX REMEDIES AND OBSERVATIONS.

The might of Nature, too, is equally conspicuous in the animals which live upon dry land as well;[81] the beaver, for instance, more generally known as "castor," and the testes[82] of which are called in medicine "castorea." Sextius, a most careful enquirer into the nature and history of medicinal substances, assures us that it is not the truth that this animal, when on the point of being taken, bites off its testes: he informs us, also, that these substances are small, tightly-knit, and attached to the back-bone, and that it is impossible to remove them without taking the animal's life. We learn from him that there is a mode of adulterating them by substituting the kidneys of the beaver, which are of considerable size, whereas the genuine testes are found to be extremely diminutive: in addition to which, he says that they must not be taken to be bladders, as they are two in number, a provision not to be found in any animal. Within these pouches,[83] he says, there is a liquid found, which is preserved by being put in salt; the genuine castoreum being easily known from the false, by the fact of its being contained in two pouches, attached by a single ligament. The genuine article, he says, is sometimes fraudulently sophisticated by the admixture of gum and blood, or else hammoniacum:[84] as the pouches, in fact, ought to be of

[80] See B. xix. c. 15, and B. xxii. c. 49.

[81] As water, and are consequently amphibious.

[82] The Castoreum of the ancients, the "castor" of our Materia Medica, is *not* in reality produced from the testes of the beaver, as was supposed by the ancients, but from two oval pouches situate near the anus of the animal of either sex. There are four of these pouches in all, two containing a species of fat, and two larger ones including in their membranous cells a viscous fetid substance, which forms the castor of medicine. It is considered to be an antispasmodic.

[83] "Folliculos." A very appropriate term, as Ajasson remarks.

[84] See B. xii. c. 49, and B. xxiv. c. 14.

the same colour as this last, covered with thin coats full of a liquid of the consistency of honey mixed with wax, possessed of a fetid smell, of a bitter, acrid taste, and friable to the touch.

The most efficacious castoreum is that which comes from Pontus and Galatia, the next best being the produce of Africa. When inhaled, it acts as a sternutatory. Mixed with oil of roses and peucedanum,[85] and applied to the head, it is productive of narcotic effects—a result which is equally produced by taking it in water; for which reason it is employed in the treatment of phrenitis. Used as a fumigation, it acts as an excitant upon patients suffering from lethargy: and similarly employed, or used in the form of a suppository, it dispels hysterical[86] suffocations. It acts also as an emmenagogue and as an expellent of the afterbirth, being taken by the patient, in doses of two drachmæ, with pennyroyal,[87] in water. It is employed also for the cure of vertigo, opisthotony, fits of trembling, spasms, affections of the sinews, sciatica, stomachic complaints, and paralysis, the patient either being rubbed with it all over, or else taking it as an electuary, bruised and incorporated with seed of vitex,[88] vinegar, and oil of roses, to the consistency of honey. In the last form, too, it is taken for the cure of epilepsy, and in a potion, for the purpose of dispelling flatulency and gripings in the bowels, and for counteracting the effects of poison.

When taken as a potion, the only difference is in the mode of mixing it, according to the poison that it is intended to neutralize; thus, for example, when it is taken for the sting of the scorpion, wine is used as the medium; and when for injuries inflicted by spiders or by the phalangium,[89] honied wine where it is intended to be brought up again, and rue where it is desirable that it should remain upon the stomach. For injuries inflicted by the chalcis,[90] it is taken with myrtle wine; for the sting of the cerastes[91] or prester[92] with panax[93] or

[85] See B. xxv. c. 70.
[86] Castor is still given to females to inhale, when suffering from hysteria.
[87] See B. xx. c. 54.
[88] See B. xxiv. c. 38.
[89] See B. viii. c. 41, B. x. c. 95, and B. xi. cc. 24, 28.
[90] See B. xxix. c. 32.
[91] See B. viii. c. 35, and B. xvi, c. 80.
[92] See B. xx. c. 81; B. xxii. c. 13; B. xxiii. c. 23, and B. xxiv. c. 73.
[93] See B. xii. c. 57.

rue in wine; and for those of other serpents, with wine only. In all these cases two drachmæ of castoreum is the proper dose, to one of the other ingredients respectively. It is particularly useful, also, in combination with vinegar, in cases where viscus[94] has been taken internally, and, with milk or water, as a neutralizer of aconite: as an antidote to white hellebore it is taken with hydromel and nitre.[95] It is curative, also, of tooth-ache, for which purpose it is beaten up with oil and injected into the ear, on the side affected. For the cure of ear-ache, the best plan is to mix it with meconium.[96] Applied with Attic honey in the form of an ointment, it improves the eyesight, and taken with vinegar it arrests hiccup.

The urine, too, of the beaver, is a neutralizer of poisons, and for this reason is used as an ingredient in antidotes. The best way of keeping it, some think, is in the bladder of the animal.

### CHAP. 14 (4.)—THE TORTOISE: SIXTY-SIX REMEDIES AND OBSERVATIONS.

The tortoise,[97] too, is an animal that is equally amphibious with the beaver, and possessed of medicinal properties as strongly developed; in addition to which, it claims an equal degree of notice for the high price which luxury sets upon its shell,[98] and the singularity of its conformation. Of tortoises, there are various kinds, land tortoises,[99] sea tortoises,[1] tortoises[2] which live in muddy waters, and tortoises[2] which live in fresh; these last being known to some Greek authors by the name of "emydes." The flesh of the land-tortoise is employed for fumigations more particularly, and we find it asserted that it is highly salutary for repelling the malpractices of magic, and for

[94] Or Mistletoe; see B. xvi. c. 92.

[95] As to the identity of the "nitrum" of the ancients, see B. xxxi. c. 46 and the Notes.

[96] See B. xx. c. 76.

[97] Under the head of "testudines," he includes the tortoises, terrapenes, and turtles, which form an order of reptiles, known in Natural History as Chelonia, and characterised by the body being enclosed between a double shield or shell, out of which protrude the head, tail, and four extremities.

[98] See B. ix. cc. 11, 12.

[99] Our tortoises so called.

[1] Our Chelonides, or turtles.

[2] The Emydes and Trionyches of Modern Natural History.

neutralizing poisons. These tortoises are found in the greatest numbers in Africa; where the head and feet being first cut off, it is said, they are given to persons by way of antidote. Eaten, too, in a broth made from them, they are thought to disperse scrofula, diminish the volume of the spleen, and effect the cure of epilepsy. The blood of the land-tortoise improves the eyesight, and removes cataract: it is kept also, made up with meal into pills, which are given with wine when necessary, to neutralize the poison of all kinds of serpents, frogs, spiders, and similar venomous animals. It is found a useful plan, too, in cases of glaucoma, to anoint the eyes with gall of tortoises, mixed with Attic honey, and, for the cure of injuries inflicted by scorpions, to drop the gall into the wound.

Ashes of tortoiseshell, kneaded up with wine and oil, are used for the cure of chaps upon the feet, and of ulcerations. The shavings of the surface of the shell, administered in drink, act as an antaphrodisiac: a thing that is the more surprising, from the fact that a powder prepared from the whole of the shell has the reputation of being a strong aphrodisiac. As to the urine of the land-tortoise, I do not think that it can be obtained otherwise than by opening it and taking out the bladder; this being one of those substances to which the adepts in magic attribute such marvellous properties. For the sting of the asp, they say, it is wonderfully effectual; and even more so, if bugs are mixed with it. The eggs of the tortoise, hardened by keeping, are applied to scrofulous sores and ulcers arising from burns or cold: they are taken also for pains in the stomach.

The flesh of the sea-tortoise,[3] mixed with that of frogs, is an excellent remedy for injuries caused by the salamander;[4] indeed there is nothing that is a better neutralizer of the secretions of the salamander than the sea-tortoise. The blood of this animal reproduces the hair when lost through alopecy, and is curative of porrigo and all kinds of ulcerations of the head; the proper method of using it being to let it dry, and then gently wash it off. For the cure of ear-ache, this blood is injected with woman's milk, and for epilepsy it is eaten with fine wheaten flour, three heminæ of the blood being mixed with one hemina of vinegar. It is prescribed also for the cure of asthma; but in this case in combination with one

[3] Or turtle. [4] See B. x. c. 86.

hemina of wine. Sometimes, too, it is taken by asthmatic patients, with barley-meal and vinegar, in pieces about the size of a bean; one of these pieces being taken each morning and evening at first, but after some days, two in the evening. In cases of epilepsy, the mouth of the patient is opened and this blood introduced. For spasmodic affections, when not of a violent nature, it is injected, in combination with castoreum, as a clyster. If a person rinses his teeth three times a year with blood of tortoises, he will be always exempt from tooth-ache. This blood is also a cure for asthmatic affections, and for the malady called "orthopnœa," being administered for these purposes in polenta.

The gall of the tortoise improves the eye-sight, effaces scars, and cures affections of the tonsillary glands, quinsy, and all kinds of diseases of the mouth, cancers of that part more particularly, as well as cancer of the testes. Applied to the nostrils it dispels epilepsy, and sets the patient on his feet: incorporated in vinegar with the slough of a snake, it is a sovereign remedy for purulent discharges from the ears. Some persons add ox-gall and the broth of boiled tortoise-flesh, with an equal proportion of snake's slough; but in such case, care must be taken to boil the tortoise in wine. Applied with honey, this gall is curative of all diseases of the eyes; and for the cure of cataract, gall of the sea-tortoise is used, in combination with blood of the river-tortoise and milk. The hair, too, of females, is dyed[5] with this gall. For the cure of injuries inflicted by the salamander, it will be quite sufficient to drink the broth of boiled tortoise-flesh.

There is, again, a third[6] kind of tortoise, which inhabits mud and swampy localities: the shell on its back is flat and broad, like that upon the breast, and the callipash is not arched and rounded, the creature being altogether of a repulsive appearance. However, there are some remedial medicaments to be derived even from this animal. Thus, for instance, three of them are thrown into a fire made with wood cuttings, and the moment their shells begin to separate they are taken off: the flesh is then removed, and boiled with a little salt, in one congius of water. When the water has boiled down to one third,

[5] To make it of a yellow or golden colour, Dalechamps says.

[6] Identified by Ajasson with the Emys lutaria of Modern Natural History.

the broth is used, being taken by persons apprehensive of paralysis or of diseases of the joints. The gall, too, is found very useful for carrying off pituitous humours and corrupt blood: taken in cold water, it has an astringent effect upon the bowels.

There is a fourth kind of tortoise, which frequents rivers. When used for its remedial properties, the shell of the animal is removed, and the fat separated from the flesh and beaten up with the plant aizoüm,[7] in combination with unguent and lily seed: a preparation highly effectual, it is said, for the cure of quartan fevers, the patient being rubbed with it all over, the head excepted, just before the paroxysms come on, and then well wrapped up and made to drink hot water. It is stated also, that to obtain as much fat as possible, the tortoise should be taken on the fifteenth day of the moon, the patient being anointed on the sixteenth. The blood of this tortoise, dropt, by way of embrocation, upon the region of the brain, allays head-ache; it is curative also of scrofulous sores. Some persons recommend that the tortoise should be laid[8] upon its back and its head cut off with a copper knife, the blood being received in a new earthen vessel; and they assure us that the blood of any kind of tortoise, when thus obtained, will be an excellent liniment for the cure of erysipelas, running ulcers upon the head, and warts. Upon the same authority, too, we are assured that the dung of any kind of tortoise is good for the removal of inflammatory tumours. Incredible also as the statement is, we find it asserted by some, that ships[9] make way more slowly when they have the right foot of a tortoise on board.

### CHAP. 15.—REMEDIES DERIVED FROM THE AQUATIC ANIMALS, CLASSIFIED ACCORDING TO THE RESPECTIVE DISEASES.

We will now proceed to classify the various remedies derived from the aquatic animals, according to the several diseases; not that we are by any means unaware that an exposition of all the properties of each animal at once, would be more to the reader's taste, and more likely to excite his admi-

[7] Our Houseleek. See B. XXV. c. 102.

[8] Because it is then powerless, and can make no effort to rise.

[9] An absurd story, founded, no doubt, on the extremely slow pace of the tortoise. Ajasson remarks that it is the fresh-water tortoise, more particularly, that is so slow in its movements.

ration; but because we consider it more conducive to the practical benefit of mankind to have the various recipes thus grouped and classified; seeing that this thing may be good for one patient, that for another, and that some of these remedies may be more easily met with in one place and some in another.

CHAP. 16. (5.)—REMEDIES FOR POISONS, AND FOR NOXIOUS SPELLS. THE DORADE: FOUR REMEDIES. THE SEA-STAR: SEVEN REMEDIES.

We have already[10] stated in what country the honey is venomous: the fish known as the dorade[11] is an antidote to its effects. Honey, even in a pure state, is sometimes productive of surfeit, and of fits of indigestion, remarkable for their severity; the best remedy in such case, according to Pelops, is to cut off the feet, head, and tail, of a tortoise, and boil and eat the body; in place, however, of the tortoise, Apelles mentions the scincus, an animal which has been described elsewhere.[12] We have already mentioned too, on several occasions,[13] how highly venomous is the menstruous fluid: the surmullet, as already[14] stated, entirely neutralizes its effects. This last fish, too, either applied topically or taken as food, acts as an antidote to the venom[15] of the pastinaca, the land and sea scorpion, the dragon,[16] and the phalangium.[17] The head of this fish, taken fresh and reduced to ashes, is an active neutralizer of all poisons, that of fungi more particularly.

It is asserted also, that if the fish called the sea-star[18] is smeared with a fox's blood, and then nailed to the upper lintel of the door, or to the door itself, with a copper nail, no noxious spells will be able to obtain admittance, or, at all events, to be productive of any ill effects.

[10] In B. xxi. c. 44.

[11] Or Gilt-head. "Aurata." See B. ix. c. 25.

[12] In B. viii. c. 38. See also B. xxviii. c. 30.

[13] Among others, in B. vii. c. 13, and B. xxviii. c. 23.

[14] In B. xxviii. c. 23.

[15] As to this point, see c. 12 of this Book, and the Notes.

[16] He must mean the Sea-dragon, mentioned in B. ix. c. 43, and in c. 53 of the present Book; for he has already stated in B. xxix. c. 20, that the serpent called "draco" is destitute of venom. See also B. viii. cc. 13, 14, 22, 41, and B. x. cc. 5, 92, 95, 96.

[17] See B. viii. c. 41, B. x. c. 95, and B. xi. cc. 24, 28, 29.

[18] See B. ix. cc. 71, 86, and c. 53 of the present Book.

CHAP. 17.—REMEDIES FOR THE STINGS OF SERPENTS, FOR THE BITES OF DOGS, AND FOR INJURIES INFLICTED BY VENOMOUS ANIMALS. THE SEA-DRAGON: THREE REMEDIES. TWENTY-FIVE REMEDIES DERIVED FROM SALTED FISH. THE SARDA: ONE REMEDY. ELEVEN REMEDIES DERIVED FROM CYBIUM.

Stings inflicted by the sea-dragon[19] or by the sea-scorpion, are cured by an application[20] of the flesh of those animals to the wound; the bites, too, of spiders are healed by the same means. In fine, as an antidote to every kind of poison, whether taken internally or acting through the agency of a sting or bite, there is considered to be nothing in existence more effectual than a decoction of the sea-dragon and sea-scorpion.

There are also certain remedies of this nature derived from preserved fish. Persons, for instance, who have received injuries from serpents, or have been bitten by other venomous animals, are recommended to eat salt fish, and to drink undiluted wine every now and then, so as, through its agency, to bring up the whole of the food again by vomit: this method being particularly good in cases where injuries have been received from the lizard called "chalcis,"[21] the cerastes,[22] the reptile known as the "seps,"[23] the elops,[24] or the dipsas.[25] For the sting of the scorpion, salted fish should be taken in larger quantities, but not brought up again, the patient submitting to any amount of thirst it may create: salt fish, too, should be applied, by way of plaster, to the wound. For the bite of the crocodile there is no more efficient remedy known. For the sting of the serpent called "prester," the sarda[26] is particularly good. Salt fish is employed also as a topical application for the bite of the mad dog; and even in cases where

[19] See Note 16 above.

[20] Rondelet asserts, B. vi. c. 19, that he himself had cured the sting of the sea-dragon by an application of the liver of that fish.

[21] See B. xxix. c. 32.

[22] See B. viii. c. 35, B. xi. c. 43, and B. xvi. c. 80.

[23] See B. xxiii. c. 29.

[24] Nicander, in his Theriaca, classes the Elops among the innocuous serpents. In B. ix. c. 27, we are informed that one name given to the Acipenser was "Elops." But see the remark made in c. 54 of this Book.

[25] See B. xxiii. c. 80.

[26] From c. 53 of the present Book, we learn that the Sarda was a kind of Pelamis, or young tunny, which was pickled, like our Anchovy.

the wound has not been cauterized with hot iron, this is found to be sufficiently effectual as a remedy. For injuries, also, inflicted by the sea-dragon,[27] an application is made of salt fish steeped in vinegar. Cybium,[28] too, is productive of similar effects. As a cure for the venomous sting inflicted with its stickle by the sea-dragon, the fish itself is applied topically to the wound, or else its brain, extracted whole.

CHAP. 18.—THE SEA-FROG: SIX REMEDIES. THE RIVER-FROG: FIFTY-TWO REMEDIES. THE BRAMBLE-FROG: ONE REMEDY. THIRTY-TWO OBSERVATIONS ON THESE ANIMALS.

The broth prepared from sea-frogs,[29] boiled in wine and vinegar, is taken internally as a neutralizer of poisons and of the venom of the bramble-frog,[30] as also for injuries inflicted by the salamander.[31] For the cure of injuries caused by the sea-hare and the various serpents above mentioned, it is a good plan to eat the flesh of river-frogs, or to drink the liquor in which they have been boiled: as a neutralizer, too, of the venom of the scorpion, river-frogs are taken in wine. Democritus assures us that if the tongue is extracted from a live frog, with no other part of the body adhering to it, and is then applied—the frog being first replaced in the water—to a woman while asleep, just at the spot where the heart is felt to palpitate, she will be sure to give a truthful answer to any question that may be put to her.

To this the Magi[32] add some other particulars, which, if there is any truth in them, would lead us to believe that frogs ought to be considered much more useful to society than laws.[33] They say, for instance, that if a man takes a frog and transfixes it with a reed, entering the body at the sexual parts and coming out at the mouth, and then dips the reed in the menstrual discharge of his wife, she will be sure to conceive an aversion for all paramours. That the flesh of frogs, attached

[27] See Note 16 above.

[28] Tunny cut into slices, and pickled. See B. ix. c. 18.

[29] See B. ix. cc. 40, 67, 74, 83.

[30] See B. viii. c. 48, B. xi. cc. 19, 76, 116, B. xxv. c. 76.

[31] See B. x. c. 86.

[32] Under the name "magi," he is probably speaking here, not of the ordinary magicians, but the Magi of the East, from whom Democritus largely borrowed.

[33] A piece of wit on the part of our author, in which he seldom indulges.

to the kype or hook, as the case may be, makes a most excellent bait, for purples more particularly, is a well-known fact. Frogs, they say, have a double[34] liver; and of this liver, when exposed to the attacks of ants, the part that is most eaten away is thought to be an effectual antidote to every kind of poison.

There are some frogs, again, which live only among brakes and thickets, for which reason they have received the name of "rubetæ,"[35] or "bramble-frogs," as already[36] stated. The Greeks call them "phryni:" they are the largest in size of all the frogs, have two protuberances[37] like horns, and are full[38] of poison. Authors quite vie with one another in relating marvellous stories about them; such, for instance, as that if they are brought into the midst of a concourse of people, silence will instantly prevail; as also that by throwing into boiling water a small bone that is found in their right side, the vessel will immediately cool, and the water refuse to boil again until it has been removed. This bone, they say, may be found by exposing a dead bramble-frog to ants, and letting them eat away the flesh: after which the bones must be put into the vessel,[39] one by one.

On the other hand, again, in the left side of this reptile there is another bone, they say, which, thrown into water, has all the appearance of making it boil, and the name given to which is "apocynon."[40] This bone, it is said, has the property of assuaging the fury of dogs, and, if put into the drink, of conciliating love and ending discord and strife. Worn, too, as an amulet, it acts as an aphrodisiac, we are told. The bone, on the contrary, which is taken from the right side, acts powerfully as a refrigerative upon boiling liquids, it is said: attached to the patient in a piece of fresh lamb's-skin, it has

[34] See B. xi. c. 76.

[35] From "rubus," a "bramble."

[36] In B. viii. c. 48. It is not improbable that the "rubetæ" of the ancients were toads.

[37] Projections of the bones in which the eyes are set, as Dalechamps remarks.

[38] "Plenæ veneficiorum." It was long a matter of doubt whether the toad is really poisonous, but it has been recently ascertained that the pustules on the skin contain a most active poison.

[39] "Solium" and "oleum" are the readings here, but we adopt the conjecture of M. Ian, and substitute "ollam."

[40] "Averting dogs."

the repute of assuaging quartan and other fevers, and of checking amorous propensities. The spleen of these frogs is used as an antidote to the various poisons that are prepared from them; and for all these purposes the liver is considered still more efficacious.

CHAP. 19.—THE ENHYDRIS: SIX REMEDIES. THE RIVER-CRAB: FOURTEEN REMEDIES. THE SEA-CRAB: SEVEN REMEDIES. THE RIVER-SNAIL: SEVEN REMEDIES. THE CORACINUS: FOUR REMEDIES. THE SEA-PIG: TWO REMEDIES.

There is also a snake[41] which lives in the water, the fat and gall of which, carried about them by persons when in pursuit of the crocodile, are said to be marvellously efficacious, the beast not venturing, in such case, to make an attack upon them. As such preservative, they are still more effectual if mixed with the herbaceous plant known as potamogiton.[42] River-crabs,[43] taken fresh and beaten up and drunk in water, or the ashes of them, kept for the purpose, are useful in all cases of poisoning, as a counter-poison: taken with asses' milk they are particularly serviceable as a neutralizer of the venom of the scorpion; goats' milk or any other kind of milk being substituted where asses' milk cannot be procured. Wine, too, should also be used in all such cases. River-crabs, beaten up with ocimum,[44] and applied to scorpions, are fatal to them. They are possessed of similar virtues, also, for the bites of all other kinds of venomous animals, the scytale[45] in particular, adders, the sea-hare, and the bramble-frog. The ashes of them, preserved, are good for persons who give symptoms of hydrophobia after being bitten by a mad dog, some adding gentian as well, and administering the mixture in wine. In cases, too, where hydrophobia has already appeared, it is recommended that these ashes should be kneaded up into boluses with wine, and swallowed. If ten of these crabs are tied together with a handful of ocimum,[46] all the scorpions in the neighbourhood, the magicians say, will be attracted to the spot.

[41] The Enhydris, probably. See B. xxx. c. 8.

[42] See B. xxvi. c. 33.

[43] "Cancri fluviatiles." Our crawfish, the Potamobios of Leach.

[44] See B. xix. cc. 31, 36, 44, and B. xx. c. 48.

[45] It is difficult to say whether he means the shrew-mouse here, the bite of which was supposed to be poisonous, or the serpent called Scytale, mentioned by Lucan, B. ix. l. 717.

[46] See Note 44 above.

They recommend, also, that to wounds inflicted by the scorpion, these crabs, or the ashes of them, should be applied, with ocimum. For all these purposes, however, sea-crabs, it should be remembered, are not so useful. Thrasyllus informs us that there is nothing so antagonistic to serpents as crabs; that swine, when stung by a serpent, cure themselves by eating them; and that, while the sun is in the sign of Cancer,[47] serpents suffer the greatest tortures.

The flesh, too, of river-snails, eaten either raw or boiled, is an excellent antidote to the venom of the scorpion, some persons keeping them salted for the purpose. These snails are applied, also, topically to the wound.

The coracinus[48] is a fish peculiar to the river Nilus, it is true, but the particulars we are here relating are for the benefit of all parts of the world: the flesh of it is most excellent as an application for the cure of wounds inflicted by scorpions. In the number of the poisonous fishes we ought to reckon the sea-pig,[49] a fish which causes great suffering to those who have been pierced with the pointed fin upon its back: the proper remedy in such case is the slime taken from the other parts of the body of the fish.

CHAP. 20.—THE SEA-CALF: TEN REMEDIES. THE MURÆNA: ONE REMEDY. THE HIPPOCAMPUS: NINE REMEDIES. THE SEA-URCHIN: ELEVEN REMEDIES.

In cases of hydrophobia resulting from the bite of the mad dog, the practice is to rub the patient's face with the fat of the sea-calf; an application rendered still more efficacious by the admixture of hyæna's marrow, oil of mastich, and wax. Bites inflicted by the muræna are cured by an application of the head of that fish, reduced to ashes. The pastinaca,[50] also, is remedial for its own bite, the ashes of the same fish, or of another of the same genus, being applied to the wound with vinegar. When this fish is intended for food, every portion of the back that is of a saffron colour should be removed, as well

[47] The Crab. This is giving the serpent credit for too much wisdom; an acquaintance, in fact, with the fantastic names which mankind have bestowed upon the signs of the Zodiac.

[48] See B. ix. c. 32.

[49] The same as the Orbis or Orthagoriscus of Chapters 5 and 9 of this Book, the Mola or sun-fish of the Mediterranean. See B. ix. c. 17.

[50] Or sting-ray. See B. ix. c. 72.

as the whole of the head: care, too, should be taken not to wash it over much; an observation equally applicable to all kinds of shell-fish, when intended for food, the flavour being deteriorated[51] thereby.

The hippocampus,[52] taken in drink, neutralizes the poison of the sea-hare. As a counter-poison to dorycnium,[53] sea-urchins are remarkably useful; as also in cases where persons have taken juice of carpathum[54] internally; more particularly if the urchins are used with the liquor in which they are boiled. Boiled sea-crabs, too, are looked upon as highly efficacious in cases of poisoning by dorycnium; and as a neutralizer of the venom of the sea-hare they are particularly good.

CHAP. 21. (6.)—THE VARIOUS KINDS OF OYSTERS: FIFTY-EIGHT REMEDIES AND OBSERVATIONS. PURPLES: NINE REMEDIES.

Oysters, too, neutralize the venom of the sea-hare—and now that we are speaking of oysters, it may possibly be thought that I have not treated of this subject at sufficient length in the former part[55] of my work, seeing that for this long time past the palm has been awarded to them at our tables as a most exquisite dish. Oysters love fresh water and spots[56] where numerous rivers discharge themselves into the sea; hence it is that the pelagia[57] are of such small size and so few in number. Still, however, we do find them breeding among rocks and in places far remote from the contact of fresh water, as in the neighbourhood of Grynium[58] and of Myrina,[59] for example. Generally speaking, they increase in size with the increase of the moon, as already stated by us when[60] treating of the aquatic animals: but it is at the beginning of summer, more par-

[51] There is considerable truth in this observation.

[52] The sea-horse, the Syngnathus hippocampus of Linnæus. See B. ix. c. 1.

[53] See B. xxi. c. 105.

[54] The same, probably, as the "opocarpathon" of B. xxviii. c. 45, a substance which does not appear to have been identified with any degree of certainty. See also c. 31 of the present Book.

[55] B. ix. c. 79.

[56] Ajasson remarks that these statements are consistent with fact.

[57] "Deep-sea" oysters.

[58] In Asia Minor. See B. v. c. 32, where it is called "Grynia."

[59] In Lemnos. See B. iv. c. 23, and B. v. c. 32.

[60] This is an error: the statement is made, not in B. ix., but in B. ii. c. 109.

ticularly, and when the rays of the sun penetrate the shallow waters, that they are swollen with an abundance of milk.[61] This, too, would appear to be the reason why they are so small when found out at sea; the opacity of the water tending to arrest their growth, and the moping consequent thereon producing a comparative indisposition for food.

Oysters are of various colours; in Spain they are red, in Illyricum of a tawny hue, and at Circeii[62] black, both in meat and shell. But in every country, those oysters are the most highly esteemed that are compact without being slimy from their secretions, and are remarkable more for their thickness than their breadth. They should never be taken in either muddy or sandy spots, but from a firm, hard bottom; the meat[63] should be compressed, and not of a fleshy consistence; and the oyster should be free from fringed edges, and lying wholly in the cavity of the shell. Persons of experience in these matters add another characteristic; a fine purple thread, they say, should run round the margins of the beard, this being looked upon as a sign of superior quality, and obtaining for them their name of "calliblephara."[64]

Oysters are all the better for travelling and being removed to new waters; thus, for example, the oysters of Brundisium, it is thought, when fed in the waters of Avernus, both retain their own native juices and acquire the flavour of those of

[61] See B. ix. c. 74. It is at the spawning season that this milky liquid is found in the oyster; a period at which the meat of the fish is considered unwholesome as food. We have a saying that the oyster should never be eaten in the months without an r; that the same, too, was the opinion in the middle ages is proved by the Leonine line:

"Mensibus erratis vos ostrea manducatis."

"In the r'd months you may your oysters eat."

[62] See B. iii. c. 9. Horace speaks of the oysters of Circeii, B. ii. Sat. 4. l. 33.

[63] There has been considerable discussion among the commentators as to the meaning of the word "spondylus" here. We are inclined to adopt the opinion of Venette, and to think that it means the so-called "meat" of the oyster. It must be short, and consequently plump and comparatively destitute of beard, and it must not be fleshy, as that would imply a degree of toughness not desirable in an oyster. The words "nec fibris laciniata ac tota in alvo," only seem to be an amplification of the preceding ones, "spondylo brevi et non carnoso."

[64] Literally, "Having beautiful eyebrows."

Lake Lucrinus.[65] Thus much with reference to the meat of the oyster; we will now turn to the various countries which produce it, so that no coast may be deprived of the honours which properly belong to it. But in giving this description we will speak in the language of another, using the words of a writer who has evinced more careful discernment in treating of this subject than any of the other authors of our day. These then are the words of Mucianus, in reference to the oyster:—"The oysters of Cyzicus[66] are larger than those of Lake Lucrinus,[66*] fresher[67] than those of the British coasts,[68] sweeter[69] than those of Medulæ,[70] more tasty[71] than those of Ephesus, more plump than those of Lucus,[72] less slimy than those of Coryphas,[73] more delicate than those of Istria,[74] and whiter than those of Circeii."[75] For all this, however, it is a fact well ascertained that there are no oysters fresher or more delicate than those of Circeii, last mentioned.

According to the historians of the expedition of Alexander, there were oysters found in the Indian Sea a foot[76] in diameter: among ourselves, too, the nomenclature of some spendthrift and gourmand has found for certain oysters the name of "tridacna,"[77] wishing it to be understood thereby, that they are so large as to require three bites in eating them. We will take the present opportunity of stating all the medicinal properties that are attributed to oysters. They are singularly refreshing[78] to the stomach, and tend to restore the appetite. Luxury, too, has imparted to them an additional coolness by burying them in snow, thus making a medley of the

[65] See B. ix. c. 79.
[66] See B. v. c. 40.
[66*] See B. iii. c. 9.
[67] "Dulciora."
[68] Those of Rutupæ, the present Richborough in Kent, were highly esteemed by the Romans. See Juvenal, Sat. 4. l. 141.
[69] "Suaviora."
[70] The district in the vicinity of Bordeaux, now called Medoc. The oysters of Medulæ are mentioned in terms of praise by Ausonius, Epist. vii. and Epist. cxliii.
[71] "Aeriora."
[72] See B. iii. c. 4.
[73] See B. v. c. 32.
[74] See B. iii. c. 23.
[75] See B. iii. c. 9.
[76] They probably gave the name of "oyster" to some other shell-fish of large size. In Cook's Voyages we read of cockles in the Pacific, which two men were unable to carry.
[77] From τρὶς, "thrice," and δάκνω, "to bite."
[78] Ajasson remarks that many persons are unable to digest oysters, in an uncooked state.

produce of the tops of mountains and the bottom of the sea. Oysters are slightly laxative to the bowels; and boiled in honied wine, they relieve tenesmus, in cases where it is unattended with ulceration. They act detergently also upon ulcerations of the bladder.[79] Boiled in their shells, unopened just as they come to hand, oysters are marvellously efficacious for rheumatic defluxions. Calcined oyster-shells, mixed with honey, allay affections of the uvula and of the tonsillary glands: they are similarly used for imposthumes of the parotid glands, inflamed tumours, and indurations of the mamillæ. Applied with water, these ashes are good for ulcerations of the head, and impart a plumpness to the skin in females. They are sprinkled, too, upon burns, and are highly esteemed as a dentifrice. Applied with vinegar, they are good for the removal of prurigo and of pituitous eruptions. Beaten up in a raw state, they are curative of scrofula and of chilblains upon the feet.

Purples, too, are useful[80] as a counterpoison.

### CHAP. 22.—SEA-WEED: TWO REMEDIES.

According to Nicander, sea-weed is also a theriac.[81] There are numerous varieties of it, as already[82] stated; one, for instance, with an elongated leaf, another red, another again with a broader leaf, and another crisped. The most esteemed kind of all is that which grows off the shores of Crete, upon the rocks there, close to the ground: it being used also for dyeing wool, as it has the property[83] of so fixing the colours as never to allow of their being washed out. Nicander recommends it to be taken with wine.

[79] Ajasson remarks that calcined oyster-shells formed an ingredient in the famous lithontriptic of Mrs. Stephens, a so-called remedy which obtained for her a considerable reward, voted by the English Parliament in the middle of last century.

[80] A statement purely imaginary, Ajasson thinks; the liquid of this class of shell-fish containing no element whatever to fit it for an antidote.

[81] Or antidote. [82] In B. xxvi. c. 66.

[83] Many varieties of sea-weed are now known, Ajasson says, to possess this property, and are still used by savage nations for colouring the body. In Europe, the use of indigo, madder, and other tinctorial plants of a more decided character, has caused them to be entirely neglected for dyeing purposes.

CHAP. 23. (7.)—REMEDIES FOR ALOPECY, CHANGE OF COLOUR IN THE HAIR, AND ULCERATIONS OF THE HEAD. THE SEA-MOUSE: TWO REMEDIES. THE SEA-SCORPION: TWELVE REMEDIES. THE LEECH: SEVEN REMEDIES. THE MUREX: THIRTEEN REMEDIES. THE CONCHYLIUM: FIVE REMEDIES.

Ashes of the hippocampus,[84] mixed with nitre[85] and hog's lard, or else used solely with vinegar, are curative of alopecy; the skin being first prepared for the reception of the necessary medicaments by an application of powdered bone of sæpia.[86] Alopecy is cured also with ashes of the sea-mouse,[87] mixed with oil; ashes of the sea-urchin, burnt, flesh and all together; the gall of the sea-scorpion;[88] or else ashes of three frogs burnt alive in an earthen pot, applied with honey, or what is still better, in combination with tar. Leeches left to putrefy for forty days in red wine stain the hair black. Others, again, recommend one sextarius of leeches to be left to putrefy the same number of days in a leaden vessel, with two sextarii of vinegar, the hair to be well rubbed with the mixture in the sun. According to Sornatius, this preparation is naturally so penetrating, that if females, when they apply it, do not take the precaution of keeping some oil in the mouth, the teeth even will become blackened thereby. Ashes of burnt shells of the murex or purple are used as a liniment, with honey, for ulcerations of the head; the shells, too, of other shell-fish,[89] powdered merely, and not calcined, are very useful for the same purpose, applied with water. For the cure of head-ache, castoreum is employed, in combination with peucedanum[90] and oil of roses.

CHAP. 24.—REMEDIES FOR DISEASES OF THE EYES AND EYE-LIDS. TWO REMEDIES DERIVED FROM THE FAT OF FISHES. THE CALLIONYMUS: THREE REMEDIES. THE GALL OF THE CORACINUS: ONE REMEDY. THE SÆPIA: TWENTY-FOUR REMEDIES. ICHTHYOCOLLA: FIVE REMEDIES.

The fat of all kinds of fish, both fresh-water as well as sea

[84] Probably the Syngnathus hippocampus of Linnæus. See B. ix. c. 7.
[85] As to the Nitrum of the ancients, see B. xxxi. c. 46.
[86] Or Cuttlefish. See B. ix. c. 44. [87] See B. ix. c. 35.
[88] See c. 17 of the present Book.
[89] This seems to be the meaning of "conchyliorum" here, though in most instances Pliny uses it as synonymous with the purple. See B. ix. cc. 60, 61, 64. [90] See B. xxv. c. 70.

fish, melted in the sun and incorporated with honey, is an excellent improver of the eye-sight;[91] the same, too, with castoreum,[92] in combination with honey. The gall of the callionymus[93] heals marks upon the eyes and cauterizes fleshy excrescences about those organs: indeed, there is no fish with a larger quantity of gall than this, an opinion expressed too by Menander in his Comedies.[94] This fish is known also as the "uranoscopos,"[95] from the eyes being situate in the upper part of the head.[96] The gall, too, of the coracinus[97] has the effect of sharpening the eyesight.

The gall of the red sea-scorpion,[98] used with stale oil or Attic honey, disperses incipient cataract; for which purpose, the application should be made three times, on alternate days. A similar method is also employed for removing indurations[99] of the membrane of the eyes. The surmullet, used as a diet, weakens the eyesight, it is said. The sea-hare is poisonous itself, but the ashes of it are useful as an application for preventing superfluous hairs on the eyelids from growing again, when they have been once pulled out by the roots. For this purpose, however, the smaller the fish is, the better. Small scallops, too, are salted and beaten up with cedar resin for a similar purpose, or else the frogs known as "diopetes"[1] and

[91] This assertion reminds us of the healing effects of the fish with which Tobit cured his father's blindness. See Tobit, c. xi. v. 13.

[92] See c. 13 of this Book.

[93] Identified by Ajasson with the white Rascasse of the Mediterranean. Hardouin combats the notion that this was the fish, the gall of which was employed by Tobit for the cure of his father, and is inclined to think that the Silurus was in reality the fish; a notion no better founded than the other, Ajasson thinks.

[94] In his "Messenia," for instance. The fragment has been preserved by Ælian, Hist. Anim. B. xiii. c. 4. Ajasson remarks that the ancients clearly mistook the swimming bladder of the fish for the gall.

[95] Or "heaven-gazer."

[96] The original has "ab oculo quem,"—but we have adopted the reading suggested by Dalechamps, "Ab oculis quos in superiore capite." Ajasson says that the white rascasse has the eyes so disposed on the upper part of the head as to have the appearance of gazing upwards at the heavens. Hence it is that at Genoa, the fish is commonly known as the *prête* or "priest."

[97] See B. ix. c. 32.

[98] See Chapter 17 of the present Book.

[99] "Albugines."

[1] Meaning, literally, "Fallen from Jupiter," in reference to their supposed descent from heaven in showers of rain.

"calamitæ," are used; the blood of them being applied with vine gum to the eyelids, after the hairs have been removed.

Powdered shell[2] of sæpia, applied with woman's milk, allays swellings and inflammations of the eyes; employed by itself it removes eruptions of the eyelids. When this remedy is used, it is the practice to turn up the eyelids, and to leave the medicament there a few moments only; after which, the part is anointed with oil of roses, and the inflammation modified by the application of a bread-poultice. Powdered bone of sæpia is used also for the treatment of nyctalopy, being applied to the eyes with vinegar. Reduced to ashes, this substance removes scales upon the eyes: applied with honey, it effaces marks upon those organs: and used with salt and cadmia,[3] one drachma of each, it disperses webs which impede the eyesight, as also albugo in the eyes of cattle. They say, too, that if the eyelids are rubbed with the small bone[4] taken from this fish, a perfect cure will be experienced.

Sea-urchins, applied with vinegar, cause epinyctis to disappear. According to what the magicians say, they should be burnt with vipers' skins and frogs, and the ashes sprinkled in the drink; a great improvement of the eyesight being guaranteed as the sure result.

"Ichthyocolla"[5] is the name given to a fish with a glutinous skin; the glue made from which is also known by the same name, and is highly useful for the removal of epinyctis. Some persons, however, assert that it is from the belly of the fish, and not the skin—as in the case of bull glue—that the ichthyocolla is prepared. That of Pontus[6] is highly esteemed: it is white, free from veins or scales, and dissolves with the greatest rapidity. The proper way of using it, is to cut it into small pieces, and then to leave it to soak in water or vinegar a night and a day, after which it should be pounded

[2] Cortex. [3] See B. xxxiv. cc. 22, 23. [4] "Ossiculo."

[5] Literally, "fish-glue." We can hardly believe Pliny that any fish was known by this name. Hardouin takes the fish here spoken of to be identical with that mentioned in B. ix. c. 17, as being caught in the Borysthene, and destitute of bones. It is most probable, however, that the "*ichthyocolla*" of the ancients, or "fish-glue," was the same as our isinglass, and that it was prepared from the entrails of various fish, the sturgeon more particularly, the Acipenser huso of Linnæus.

[6] The best isinglass still comes from Russia.

with sea-shore pebbles, to make it melt the more easily. It is generally asserted that this substance is good for pains in the head and for tetanus.

The right eye of a frog, suspended from the neck in a piece of cloth made from wool of the natural colour,[7] is a cure for ophthalmia in the right eye; and the left eye of a frog, similarly suspended, for ophthalmia in the left. If the eyes, too, of a frog are taken out at the time of the moon's conjunction, and similarly worn by the patient, enclosed in an eggshell, they will effectually remove indurations of the membrane of the eyes. The rest of the flesh applied topically, removes all marks resulting from blows. The eyes, too, of a crab, worn attached to the neck, by way of amulet, are a cure for ophthalmia, it is said. There is a small frog[8] which lives in reed-beds and among grass more particularly, never croaks, being quite destitute of voice, is of a green colour, and is apt to cause tympanitis in cattle, if they should happen to swallow it. The slimy moisture on this reptile's body, scraped off with a spatula and applied to the eyes, greatly improves the sight, they say: the flesh, too, is employed as a topical application for the removal of pains in the eyes.

Some persons take fifteen frogs, and after spitting them upon as many bulrushes, put them into a new earthen vessel: they then mix the juices which flow from them, with gum of the white vine,[9] and use it as an application for the eye-lids; first pulling out such eye-lashes as are in the way, and then dropping the preparation with the point of a needle into the places from which the hairs have been removed. Meges[10] used to prepare a depilatory for the eyelids, by killing frogs in vinegar, and leaving them to putrefy; for which purpose he employed the spotted frogs which make their appearance in vast numbers[11] during the rains of autumn. Ashes of burnt

[7] "Nativi coloris." See B. viii. c. 23. Beckmann says, in reference to the present passage: "We manufacture the wool of our brown sheep in its natural colour, and this was done also by the ancients."—*Hist. Inv.* vol. ii. p. 110, *Bohn's Ed.*

[8] The "calamites" above mentioned, so called from "calamus," a reed.

[9] The Bryonia Cretica of Linnæus; see B. xxiii. c. 16.

[10] An eminent surgeon, born at Sidon in Phœnicia, who practised at Rome, probably in the first century B.C.

[11] "Mutis," "silent," or "voiceless" frogs, as suggested by Gessner, Hist. Anim. B. ii., would almost seem to be a preferable reading here to "multis," "many."

leeches, it is thought, applied in vinegar, are productive of a similar effect; care must be taken, however, to burn them in a new earthen vessel. Dried liver, too, of the tunny,[12] made up into an ointment, in the proportion of four denarii, with oil of cedar, and applied as a depilatory for nine months together, is considered to be highly effectual for this purpose.

CHAP. 25.—REMEDIES FOR DISEASES OF THE EARS. THE BATIA: ONE REMEDY. THE BACCHUS OR MYXON: TWO REMEDIES. THE SEA-LOUSE: TWO REMEDIES.

For diseases of the ears, fresh gall of the fish called "batia"[13] is remarkably good; the same, too, when it has been kept in wine. The gall, also, of the bacchus,[14] by some known as the "myxon," is equally good; as also that of the callionymus,[15] injected into the ears with oil of roses, or else castoreum,[16] used with poppy-juice. There are certain animals too, known as "sea-lice,"[17] which are recommended as an injection for the ears, beaten up with vinegar. Wool, too, that has been dyed with the juice of the murex, employed by itself, is highly useful for this purpose; some persons, however moisten it with vinegar and nitre.[18]

Others, again, more particularly recommend for all affections of the ears one cyathus of the best garum,[19] with one cyathus and a half of honey, and one cyathus of vinegar, the whole gently boiled in a new pot over a slow fire, and skimmed with a feather every now and then: when it has become wholly free from scum, it is injected lukewarm into the ears. In cases where the ears are swollen, the same authorities recommend that the swellings should be first reduced with juice of coriander. The fat of frogs, injected into the ears, instantly removes all pains in these organs. The juice of river-crabs, kneaded up with barley-meal, is a most effectual remedy for wounds in the ears. Shells of the murex, reduced to ashes,

[12] Another reading is "tænia," a fish mentioned by Epicharmus, Athenæus informs us, and considered by Ajasson to be probably identical with the Cepola rubescens, or Cepola tænia of Linnæus.

[13] The same as the Batis of the Greeks, Hardouin thinks, the Raia batis, a kind of skate.

[14] See B. ix. c. 28.

[15] See the preceding Chapter.

[16] See c. 13 of the present Book.

[17] See B. ix. c. 71.

[18] As to "nitrum," see B. xxxi. c. 46.

[19] See B. xxxi. c. 43.

and applied with honey, or the burnt shells of other shell-fish,[20] used with honied wine, are curative of imposthumes of the parotid glands.

CHAP. 26.—REMEDIES FOR TOOTH-ACHE. THE DOG-FISH: FOUR REMEDIES. WHALE'S FLESH.

Tooth-ache is alleviated by scarifying the gums with bones of the sea-dragon, or by rubbing the teeth once a year with the brains of a dog-fish[21] boiled in oil, and kept for the purpose. It is a very good plan too, for the cure of tooth-ache, to lance the gums with the sting of the pastinaca[22] in some cases. This sting, too, is pounded, and applied to the teeth with white hellebore, having the effect of extracting them without the slightest difficulty. Another of these remedies is, ashes of salted fish calcined in an earthen vessel, mixed with powdered marble. Stale cybium,[23] rinsed in a new earthen vessel, and then pounded, is very useful for the cure of tooth-ache. Equally good, it is said, are the back-bones of all kinds of salt fish, pounded and applied in a liniment. A decoction is made of a single frog boiled in one hemina of vinegar, and the teeth are rinsed with it, the decoction being retained in the mouth. In cases where a repugnance existed to making use of this remedy, Sallustius Dionysius[24] used to suspend frogs over boiling vinegar by the hind legs, so as to make them discharge their humours into the vinegar by the mouth, using considerable numbers of frogs for the purpose: to those, however, who had a stronger stomach, he prescribed the frogs themselves, eaten with their broth. It is generally thought, too, that this recipe applies more particularly to the double teeth, and that the vinegar prepared as above-mentioned, is remarkably useful for strengthening them when loose.

For this last purpose, some persons cut off the legs of two frogs, and then macerate the bodies in two heminæ of wine, recommending this preparation as a collutory for strengthening loose teeth. Others attach the frogs, whole, to the exterior of the jaws:[25] and with some it is the practice to boil ten frogs,

[20] See Note 89 to Chapter 23 of this Book.
[21] "Canicula." See B. ix. cc. 11, 70.
[22] Or sting-ray.
[23] Tunny cut in slices. See B. ix. c. 18.
[24] See end of B. xxxi.
[25] For the purpose, probably, of assuaging the pain of tooth-ache by their coolness.

in three sextarii of vinegar, down to one-third, and to use the decoction as a strengthener of loose teeth. By certain authorities, too, it has been recommended to boil the hearts of six-and-thirty frogs beneath a copper vessel, in one sextarius of old oil, and then to inject the decoction into the ear on the same side of the jaw as the part affected: while others again have used, as an application for the teeth, a frog's liver, boiled, and beaten up with honey. All the preparations above described will be found still more efficacious if made from the sea-frog.[26] In cases where the teeth are carious and emit an offensive smell, it is recommended to dry some whale's[27] flesh in an oven for a night, and then to add an equal quantity of salt, and use the mixture as a dentifrice. "Enhydris"[28] is the name given by the Greeks to a snake that lives in the water. With the four upper teeth of this reptile, it is the practice, for the cure of aching in the upper teeth, to lance the upper gums, and with the four lower teeth, for aching in the lower. Some persons, however, content themselves with using an eyetooth only. Ashes, too, of burnt crabs are used for this purpose; and the murex, reduced to ashes, makes an excellent dentifrice.

CHAP. 27.—REMEDIES FOR LICHENS, AND FOR SPOTS UPON THE FACE. THE DOLPHIN: NINE REMEDIES. COLUTHIA OR CORYPHIA: THREE REMEDIES. HALCYONEUM: SEVEN REMEDIES. THE TUNNY: FIVE REMEDIES.

Lichens and leprous spots are removed by applying the fat of the sea-calf,[29] ashes of the mæna[30] in combination with three oboli of honey, liver of the pastinaca[31] boiled in oil, or ashes of the dolphin or hippocampus[32] mixed with water. After the parts have been duly excoriated, a cicatrizing treatment ought to be pursued. Some persons bake dolphin's liver in an earthen vessel, till a grease flows therefrom like oil[33] in ap-

[26] See B. ix. cc. 40, 67. [27] "Cetum." See B. ix. cc. 40, 74.

[28] Ajasson is of opinion that here and in c. 19 Pliny has mistaken the *otter* for a serpent, the mammiferæ only having eye or canine teeth. Aristotle, Hist. Anim. B. i. c. i., calls the otter by the name of "Enhydris." See B. xxx. c. 8, where Pliny speaks of the "Enhydris" as a "male white serpent." [29] Or seal. See B. ix. c. 15.

[30] See B. ix. c. 42. Holland calls the mæna the "cackerel."

[31] Or sting-ray. [32] See B. ix. c. 1.

[33] Much like the cod-liver oil, held in such high repute at the present day.

pearance: this they use by way of ointment for these diseases.

Burnt shells of the murex or purple, applied with honey, have a detergent effect upon spots on the face in females: used as an application for seven consecutive days, a fomentation made of white of eggs being substituted on the eighth, they efface wrinkles, and plump out the skin. To the genus "murex" belong the shell-fish known by the Greeks as "coluthia" or "coryphia," equally turbinated, but considerably smaller: for all the above purposes they are still more efficacious, and the use of them tends to preserve the sweetness of the breath. Fish-glue[34] effaces wrinkles and plumps out the skin; being boiled for the purpose in water some four hours, and then pounded and kneaded up till it attains a thin consistency, like that of honey. After being thus prepared, it is put by in a new vessel for keeping; and, when wanted for use, is mixed, in the proportion of four drachmæ, with two drachmæ of sulphur, two of alkanet, and eight of litharge; the whole being sprinkled with water and beaten up together. The preparation is then applied to the face, and is washed off at the end of four hours. For the cure of freckles and other affections of the face, calcined bones of cuttle-fish are also used; an application which is equally good for the removal of fleshy excrescences and the dispersion of running sores.

(8.) For the cure of itch-scab, a frog is boiled in five semisextarii of sea-water, the decoction being reduced to the consistency of honey. There is a sea production called "halcyoneum," composed, as some think, of the nests[35] of the birds known as the "halcyon"[36] and "ceyx," or, according to others, of the concretion of sea-foam, or of some slime of the sea, or a certain lanuginous inflorescence thrown up by it. Of this halcyoneum there are four different kinds; the first, of an ashy colour, of a compact substance, and possessed of a pungent odour; the second, soft, of a milder nature, and with a smell almost iden-

[34] "Icthyocolla." See Chapter 24 of the present Book.

[35] Of course this assertion as to the nest of the kingfisher is altogether fabulous, and the sea-productions here described by Pliny were long considered, though destitute of leaves, flowers, and fruit, to belong to the vegetable kingdom. Peyssonnel, however, made the discovery that they belong to the animal kingdom, and that they owe their origin to a species of polyp.

[36] Or kingfisher. See B. x. c. 47.

tical with that of sea-weed; the third, whiter, and with a variegated surface; the fourth, more like pumice in appearance, and closely resembling rotten sponge. The best of all is that which nearly borders upon a purple hue, and is known as the "Milesian" kind: the whiter it is, the less highly it is esteemed.

The properties of halcyoneum are ulcerative and detergent: when required for use, it is parched and applied without oil. It is quite marvellous how efficiently it removes leprous sores, lichens, and freckles, used in combination with lupines and two oboli of sulphur. It is employed, also, for the removal of marks upon the eyes.[37] Andreas[38] has recommended for the cure of leprosy ashes of burnt crabs, with oil; and Attalus,[39] fresh fat of tunny.

CHAP. 28.—REMEDIES FOR SCROFULA, IMPOSTHUMES OF THE PAROTID GLANDS, QUINSY, AND DISEASES OF THE FAUCES. THE MÆNA: THIRTEEN REMEDIES. THE SEA-SCOLOPENDRA: TWO REMEDIES. THE SAURUS: ONE REMEDY. SHELL-FISH: ONE REMEDY. THE SILURUS: FIFTEEN REMEDIES.

Ulcerations of the mouth are cured by an application of brine in which mænæ[40] have been pickled, in combination with calcined heads of the fish, and honey. For the cure of scrofula, it is a good plan to prick the sores with the small bone that is found in the tail of the fish known as the sea-frog;[41] care being taken to avoid making a wound, and to repeat the operation daily, until a perfect cure is effected. The same property, too, belongs to the sting of the pastinaca, and to the sea-hare, applied topically to the sores: but in both cases due care must be taken to remove them in an instant. Shells of sea-urchins are bruised, also, and applied with vinegar; shells also of sea-scolopendræ,[42] applied with honey; and river-crabs pounded or calcined, and applied with honey. Bones, too, of the sæpia, triturated and applied with stale axle-grease, are marvellously useful for this purpose.

[37] "Oculorum cicatrices."

[38] See end of B. xx.

[39] See end of B. viii.

[40] See B. ix. c. 42.

[41] See B. ix. cc. 40, 67. The Bamberg MS. has here "rhine," (the fish again mentioned in Chapter 53 of this Book) instead of "rana;" a reading which Sillig rejects. Hardouin conjectures that "raia" is the correct reading, the sea-frog having no sting or stickle in the tail.

[42] See B. ix. c. 67.

This last preparation is used, also, for the cure of imposthumes of the parotid glands; a purpose for which the liver of the sea-fish known as the "saurus"[43] is employed. Nay, even more than this, fragments of earthen vessels in which salt fish have been kept are pounded with stale axle-grease, and applied to scrofulous sores and imposthumes of the parotid glands; as also calcined murex, incorporated with oil. Stiffness in the neck is allayed by taking what are known as sea-lice,[43*] in doses of one drachma in drink, taking castoreum[44] mixed with pepper in honied wine, or making a decoction of frogs in oil and salt, and taking the liquor.

Opisthotony, too, and tetanus are treated in a similar manner; and spasms, with the addition of pepper. Ashes of burnt heads of salted mænæ are applied externally, with honey, for the cure of quinsy; as also a decoction of frogs, boiled in vinegar, a preparation which is equally good for affections of the tonsillary glands. River-crabs, pounded, one to each hemina of water, are used as a gargle for the cure of quinsy; or else they are taken with wine and hot water. Garum,[45] put beneath the uvula with a spoon, effectually cures diseases of that part. The silurus,[46] used as food, either fresh or salted, improves the voice.

CHAP. 29.—REMEDIES FOR COUGH AND DISEASES OF THE CHEST.

Surmullets act as an emetic, dried and pounded, and taken in drink. Castoreum, taken fasting, with a small quantity of hammoniacum[47] in oxymel, is extremely good for asthma: spasms, too, in the stomach are assuaged by taking a similar potion with warm oxymel. Frogs stewed in their own liquor in the saucepan, the same way in fact that fish are dressed, are good for a cough, it is said. In some cases, also, frogs are suspended by the legs, and after their juices[48] have been received in a platter, it is recommended to gut them, and the entrails being first carefully removed, to preserve them for the above

[43] Or sea-lizard, a fish again mentioned in Chapter 53 of this Book. Ælian also speaks of it, Hist. Nat. B. xii. c. 25; but it has not been hitherto identified.

[43*] See c. 25 of this Book.

[44] See c. 13 of this Book.

[45] See B. xxxi. c. 43.

[46] See B. ix. cc. 17, 25, 75.

[47] It is not clear whether he means the gum ammoniac of B. xii. c. 49, and B. xxiv. c. 14, or the sal ammoniac of B. xxxi. c. 39.

[48] "Saliva." See the recipe of Sallustius Dionysius in Chapter 26 of this Book.

purpose. There is a small frog,[49] also, which ascends trees, and croaks aloud there: if a person suffering from cough spits into its mouth and then lets it go, he will experience a cure, it is said. For cough attended with spitting of blood, it is recommended to beat up the raw flesh of a snail, and to drink it in hot water.

CHAP. 30. (9.)—REMEDIES FOR PAINS IN THE LIVER AND SIDE. THE ELONGATED CONCH: SIX REMEDIES. THE TETHEA: FIVE REMEDIES.

For pains in the liver, a sea-scorpion is killed in wine, and the liquid is taken. The meat, too, of the elongated conch[50] is taken with honied wine and water, in equal quantities, or, if there are symptoms of fever, with hydromel. Pains in the side are assuaged by taking the flesh of the hippocampus,[51] grilled, or else the tethea,[51*] very similar to the oyster, with the ordinary food. For sciatica, the pickle of the silurus is injected, by way of clyster. The flesh of conchs, too, is prescribed, for fifteen days, in doses of three oboli soaked in two sextarii of wine.

CHAP. 31.—REMEDIES FOR DISEASES OF THE BOWELS. SEA-WORT: ONE REMEDY. THE MYAX: TWENTY-FIVE REMEDIES. THE MITULUS: EIGHT REMEDIES. PELORIDES: ONE REMEDY. SERIPHUM: TWO REMEDIES. THE ERYTHINUS: TWO REMEDIES.

The silurus,[52] taken in its broth, or the torpedo,[53] used as food, acts as a laxative upon the bowels. There is a sea-wort,[54] also, similar in appearance to the cultivated cabbage: it is injurious to the stomach, but acts most efficiently as a purgative, requiring to be cooked with fat meat for the purpose, in consequence of its extreme acridity. The broth, too, of all boiled fish is good for this purpose; it acting, also, as a strong diuretic, taken with wine more particularly. The best kind of all is that prepared from the sea-scorpion, the iulis,[55] and

[49] The Dryophites of Rondelet, Dalechamps says.

[50] Identical with the Strombus of cc. 39, 46, and 53 of this Book.

[51] See B. ix. c. 1.

[51*] Littré remarks that Pliny here seems to speak of the "Tethea" as a mollusk; whereas in c. 31, from his expression "Fungorum verius generis quam piscium," he would appear to be describing a zoophyte.

[52] See B. ix. cc. 17, 25, 75.

[53] See B. ix. cc. 24, 48, 67, 74, 75.

[54] See B. xx. c. 38.

[55] A rock fish, according to Athenæus, B. vii. Rondelet, B. vi. c. 7, identifies it with the fish called *girello* by the people of Liguria, the *donzella* of other districts.

rock-fish in general, as they are destitute of all rankness and are free from fat. The proper way of cooking them is with dill, parsley, coriander, and leeks, with the addition of oil and salt. Stale cybium,[56] too, acts as a purgative, and is particularly useful for carrying off crudities, pituitous humours, and bile.

The myax[57] is of a purgative nature, a shell-fish of which we shall take this opportunity of giving the natural history at length. These fish collect together in masses, like the murex,[58] and are found in spots covered with sea-weed. They are the finest eating in autumn, and are found in the greatest perfection in places where fresh-water streams discharge themselves into the sea; for which reason it is that those of Egypt are held in such high esteem. As the winter advances, they contract a bitter flavour, and assume a reddish hue. The liquor of these fish, it is said, acts as a purgative upon the bowels and bladder, has a detergent effect upon the intestines, acts aperiently upon all the passages, purges the kidneys, and diminishes the blood and adipose secretions. Hence it is that these shell-fish are found of the greatest use for the treatment of dropsy, for the regulation of the catamenia, and for the removal of jaundice, all diseases of the joints, and flatulency. They are very good, also, for the reduction of obesity, for diseases of the bile and of the pituitous secretions, for affections of the lungs, liver, and spleen, and for rheumatic defluxions. The only inconvenience resulting from them is, that they irritate the throat and impede the articulation. They have, also, a healing effect upon ulcers of a serpiginous nature, or which stand in need of detergents, as also upon carcinomatous sores. Calcined, the same way as the murex, and employed with honey, they are curative of bites inflicted either by dogs or human beings, and of leprous spots or freckles. The ashes of them, rinsed, are good for the removal of films upon the eyes, granulations of those organs and indurations of the membrane, as also for diseases of the gums and teeth, and for pituitous eruptions. They serve, also, as an antidote to doryc-nium[59] and to opocarpathon.[60]

[56] Sliced tunny. See B. ix. c. 18.

[57] A genus which comprises the "myes," mentioned in B. ix. c. 56, according to Dalechamps.

[58] See B. ix. c. 60.

[59] See B. xxi. c. 105.

[60] See B. xxviii. c. 45, and Chapter 20 of the present Book.

There are two species of this shell-fish, of a degenerate kind: the mitulus,[61] which has a strong flavour, and a saltish taste; and the myisca,[62] which differs from the former in the roundness of its shell, is somewhat smaller, and is covered with filaments, the shell being thinner, and the meat of a sweeter flavour. The ashes, also, of the mitulus, like those of the murex, are possessed of certain caustic properties, and are very useful for the removal of leprous spots, freckles, and blemishes of the skin. They are rinsed, too, in the same manner as lead,[63] for the removal of swellings of the eyelids, of indurations of the membranes, and of films upon the eyes, as also of sordid ulcers upon other parts of the body, and of pustules upon the head. The meat of them, also, is employed as an application for bites inflicted by dogs.

As to pelorides,[64] they act as a gentle laxative upon the bowels, an effect equally produced by castoreum, taken in doses of two drachmæ, in hydromel: where, however, a more drastic purgative is required, one drachma of dried garden-cucumber root is added, and two drachmæ of aphronitrum.[65] The tethea[66] is good for griping pains in the bowels and for attacks of flatulency: they are generally found adhering to the leaves of marine plants, sucking their nutriment therefrom, and may be rather looked upon as a sort of fungus than as a fish. They are useful, also, for the removal of tenesmus and of diseases of the kidneys.

There grows also in the sea a kind of absinthium, known by some persons as "seriphum,"[67] and found in the vicinity of Taposiris,[68] in Egypt, more particularly. It is of a more slender form than the land absinthium, acts as a purgative upon the bowels, and effectually removes intestinal worms. The sæpia, too, is a laxative; for which purpose these fish are

[61] Identical with our mussel, probably.

[62] Holland identifies this with the cockle, but it is probably a smaller kind of mussel.

[63] See B. xxxiv. c. 50.

[64] We learn from Chapter 53 of this Book, that one class of the "Chamæ," or gaping cockles, was known as "Pelorides." Horace also mentions them.

[65] See B. xxxi. c. 46.

[66] See Note 51 above. Sillig would here read "tetheum," apparently, in the singular.

[67] Described in B. xxvii. c. 29.

[68] A city not far from the Canopic branch of the Nile.

administered[69] with the food, boiled with a mixture of oil, salt, and meal. Salted mænæ,[70] applied with bull's gall to the navel, acts as a purgative upon the bowels.

The liquor of fish, boiled in the saucepan with lettuces, dispels tenesmus. River-crabs,[71] beaten up and taken with water, act astringently upon the bowels, and they have a diuretic effect, if taken with white wine. Deprived of the legs, and taken in doses of three oboli with myrrh and iris, one drachma of each, they disperse urinary calculi. For the cure of the iliac passion and of attacks of flatulency, castoreum[72] should be taken, with seed of daucus[73] and of parsley, a pinch in three fingers of each, the whole being mixed with four cyathi of warm honied wine. Griping pains in the bowels should be treated with castoreum and a mixture of dill and wine. The fish called "erythinus,"[74] used as food, acts astringently upon the bowels. Dysentery is cured by taking frogs boiled with squills, and prepared in the form of boluses, or else hearts of frogs beaten up with honey, as Niceratus[75] recommends. For the cure of jaundice, salt fish should be taken with pepper, the patient abstaining from all other kinds of meat.

CHAP. 32.—REMEDIES FOR DISEASES OF THE SPLEEN, FOR URINARY CALCULI, AND FOR AFFECTIONS OF THE BLADDER. THE SOLE: ONE REMEDY. THE TURBOT: ONE REMEDY. THE BLENDIUS: ONE REMEDY. THE SEA-NETTLE: SEVEN REMEDIES. THE PULMO MARINUS: SIX REMEDIES. ONYCHES: FOUR REMEDIES.

For the cure of spleen diseases, the fish known as the sole[76] is applied to that part; the torpedo,[77] also, or else a live turbot;[78] it being then set at liberty in the sea. The sea-scorpion,[79] killed in wine, is a cure for diseases of the bladder

[69] "Dantur" seems a preferable reading to "datur."
[70] See B. ix c. 42.
[71] Our crawfish, the Astacus potamobios of Leach.
[72] See Chapter 13 of this Book.
[73] See B. xix. c. 27, and B. xxv. c. 64.
[74] See B. ix. cc. 23, 77.
[75] See end of B. xxxi.
[76] See B. ix. cc. 20, 24, 36.
[77] See B. ix. cc. 24, 48, 67, 74, 75.
[78] "Rhombus." See B. ix. cc. 20, 36, 67, 79.
[79] See Chapters 23, 34, 30 and 53 of this Book.

and for urinary calculi; the stone, also, that is found in the tail[80] of this last fish, taken in drink, in doses of one obolus; the liver of the enhydris;[81] and the ashes of the fish called "blendius;[82] taken with rue. In the head, too, of the fish called "bacchus,"[83] there are found certain small stones, as it were: these, taken in water, six in number, are an excellent cure for urinary calculi. They say, too, that the sea-nettle,[84] taken in wine, is very useful for this purpose, as also the pulmo marinus,[85] boiled in water, The eggs of the sæpia have a diuretic effect, and carry off pituitous humours from the kidneys. Ruptures and convulsions are very effectually treated by taking river-crabs,[86] bruised in asses' milk more particularly; and urinary calculi by drinking sea-urchins pounded, spines and all, in wine; the due proportion being one semi-sextarius of wine for each urchin, and the treatment being continued till its good effects are visible. The flesh, too, of the sea-urchin, taken as food, is very useful as a remedy for the same malady.

Scallops[87] also, taken as food, act detergently upon the bladder: the male fish is by some persons called "donax," and by others "aulos," the female being known as "onyx."[88] The

[80] Rondelet, B. vi. c. 19, suggests "capite"—"in the head"—but the present reading is supported by the text of Plinius Valerianus, B. ii. c. 39, and of Marcus Empiricus, c. 28.

[81] As to the identity of the Enhydris, see Chapters 19 and 26 of the present Book: also B. xxx. c. 8.

[82] Probably the Βλεννὸς of Oppian, B. i. c. 108. Dalechamps identifies it with the mullet called "myxon," apparently the same fish as the "bacchus" mentioned in Chapter 25 of this Book. Rondelet appears to identify it with some other sea-fish, small, and extremely rare. On the other hand, the fish mentioned by Oppian is thought by Littré to be the "gobius" of the Latins, ("gobio," or "cobio," mentioned by Pliny in B. ix. c. 83, and in c. 53 of the present Book), which is generally considered the same as our gudgeon, and was a worthless fish, "vilis piscis," as Juvenal says. One of the Linnæan orders of fishes is called "Blennius," the bleuny.

[83] See B. ix. c. 28.

[84] See B. ix. c. 68.

[85] Or sea-lungs. See B. ix. c. 71, and B. xviii. c. 85.

[86] Or crawfish.

[87] "Pectines." See B. ix. cc. 51, 52, 68, 74, 112.

[88] Athenæus adds a fourth name, "solen;" and a fifth was "dactylus," see B. ix. c. 87. According to Dalechamps, the name "donax" was given to one kind of scallop, from its fancied resemblance to a thick, hollow, river-reed, and that of "onyx" from the resemblance of its colour to that of the finger-nails.

male scallop has a diuretic effect: the flesh of the female is sweeter than that of the male, and of an uniform colour. The eggs, too, of the sæpia promote the urinary secretions, and act detergently upon the kidneys.

CHAP. 33.—REMEDIES FOR INTESTINAL HERNIA, AND FOR DISEASES OF THE RECTUM. THE WATER-SNAKE: ONE REMEDY. THE HYDRUS: ONE REMEDY. THE MULLET: ONE REMEDY. THE PELAMIS: THREE REMEDIES.

For the cure of intestinal hernia the sea-hare is applied, bruised with honey. The liver of the water-snake,[89] and that of the hydrus,[90] bruised and taken in drink, are remedial for urinary calculi. Sciatica is cured by using the pickle of the silurus[91] as a clyster, the bowels being first thoroughly purged. For chafing of the fundament, an application is made of heads of mullets and surmullets, reduced to ashes; for which purpose they are calcined in an earthen vessel, and must be applied in combination with honey. Calcined heads, too, of the fish known as mænæ[92] are useful for the cure of chaps and condylomata; as also heads of salted pelamides,[93] reduced to ashes, or calcined cybium,[94] applied with honey.

The torpedo,[95] applied topically, reduces procidence of the rectum. River-crabs,[96] reduced to ashes, and applied with oil and wax, are curative of chaps of the fundament: sea-crabs, too, are equally useful for the purpose.

CHAP. 34.—REMEDIES FOR INFLAMED TUMOURS, AND FOR DISEASES OF THE GENERATIVE ORGANS. THE SCIÆNA: ONE REMEDY. THE PERCH: FOUR REMEDIES. THE SQUATINA: THREE REMEDIES. THE SMARIS: THREE REMEDIES.

The pickle of the coracinus[97] disperses inflammatory tumours; an effect which is equally produced by using the cal-

[89] It is not improbable that he may mean the same animal that has been mentioned in cc. 19 and 26 of this Book, the Enhydris. See also B. xxx. c. 8.

[90] See B. xxix. c. 22.

[91] See B. ix. cc. 17, 25, 75.

[92] See B. ix. c. 42, and Chapter 27 of this Book.

[93] See B. ix. cc. 18, 19, and Chapter 53 of this Book.

[94] Salted tunny. See B. ix. c. 18.

[95] See B. ix. cc. 24, 48, 74, 75.

[96] Our crawfish.

[97] See B. ix. cc. 24, 32.

cined intestines and scales of the sciæna.[98] The sea-scorpion,[99] too, is used for the same purpose, boiled in wine, and applied as a fomentation to the part affected. Shells of sea-urchins, bruised and applied with water, act as a check upon incipient inflammatory tumours. Ashes of the murex, or of the purple, are employed in either case, whether it is wanted to disperse inflammatory tumours in an incipient state, or to bring them to a head and break them. Some authorities prescribe the following preparation: of wax and frankincense twenty drachmæ, of litharge forty drachmæ, of calcined murex ten drachmæ, and of old oil, one semisextarius. Salt fish, boiled and applied by itself, is highly useful for the above purposes.

River crabs, bruised and applied, disperse pustules on the generative organs: the same, too, with calcined heads of mænæ,[1] or the flesh of that fish, boiled and applied. Heads of salted perch,[2] reduced to ashes, and applied with honey, are equally useful for the purpose; or else calcined heads of pelamides,[3] or skin of the squatina reduced to ashes.[4] It is the skin of this fish that is used, as already[5] stated, for giving a polish to wood; for the sea even, we find, furnishes its aid to our artificers. For a similar purpose the fishes called "smarides"[6] are applied topically; as also ashes of the shell of the murex or of the purple, applied with honey; which last are still more efficacious when the flesh has been burnt with the shell.

Salt fish, boiled with honey, is particularly good for the cure of carbuncles upon the generative organs. For relaxation of the testes, the slime[7] of snails is recommended, applied in the form of a liniment.

[98] See B. ix. c. 24.

[99] See Chapters 23, 24, 30, 32, and 53 of the present Book. Also B. xx. c. 53.

[1] See B. ix. c. 42.

[2] "Perca." See B. ix. c. 24.

[3] See Note 93 above.

[4] See B. ix. c. 14.

[5] In B. ix. c. 14.

[6] Ajasson remarks that many writers have identified the Smaris with the Sardine or the Anchovy. In his opinion, however, it is neither; but he thinks that under this head were included seven or eight varieties of the Pickerel, the principal of which are, the Sparus smaris of Linnæus and Lacépède, the Sparus mana of Linnæus, or Sparus mendola of Lacépède, and the Sparus haffara of Lacépède and Linnæus.

[7] See Chapter 22 of the present Book.

CHAP. 35.—REMEDIES FOR INCONTINENCE OF URINE. THE OPHIDION: ONE REMEDY.

The flesh of hippocampi,[8] grilled and taken frequently as food, is a cure for incontinence of urine; the ophidion,[9] too, a little fish similar to the conger in appearance, eaten with a lily root; or the small fry found in the bellies of larger fish that have swallowed them, reduced to ashes and taken in water. It is recommended, too, to burn[10] African snails, both shells and flesh, and to administer the ashes with wine[11] of Signia.

CHAP. 36.—REMEDIES FOR GOUT, AND FOR PAINS IN THE FEET. THE BEAVER: FOUR REMEDIES. BRYON: ONE REMEDY.

For the cure of gout and of diseases of the joints, oil is useful in which the intestines of frogs have been boiled. Ashes, too, of burnt bramble-frogs[12] are similarly employed, with stale grease; in addition to which, some persons use calcined barley, the three ingredients being mixed in equal proportions. It is recommended too, in cases of gout, to rub the parts affected with a sea-hare,[13] fresh caught, and to wear shoes made of beaver's skin, Pontic beaver more particularly, or else of sea-calf's[14] skin, an animal the fat of which is very useful for the purpose: the same being the case also with bryon, a plant of which we have already spoken,[15] similar to the lettuce in appearance, but with more wrinkled leaves, and destitute of stem. This plant is of a styptic nature, and, applied topically, it tends to modify the paroxysms of gout. The same, too, with sea-weed, of which we have also spoken already;[16] due precaution being taken not to apply it dry.

Chilblains are cured by applying the pulmo marinus;[17] ashes

[8] See B. ix. c. 1.

[9] Literally, the "little serpent." Some think that it is the Ophidium barbatum of Linnæus. Rondelet identifies it, B. xiv. c. 2, with the small fish called *donzella* by the people of Montpellier. See c. 31, Note 55.

[10] See B. xxx. c. 22.

[11] See B. xiv. c. 8.

[12] "Rubetæ." See c. 18 of this Book; also B. viii. c. 48; B. xi. cc. 19, 76, 116, and B. xxv. c. 76.

[13] See B. ix. c. 72; B. xxv. c. 77, and Chapter 3 of this Book.

[14] Or seal-skin. See B. viii. c. 49, and B. ix. c. 15,

[15] In B. xxvii. c. 33.

[16] In B. xxvi. c. 66.

[17] Or "sea-lungs." See B. ix. c. 71, B. xviii. c. 5, and Chapters 32, 46, and 52 of the present Book. Ajasson remarks that this is still the common name of many kinds of Medusæ.

of sea-crabs with oil; river crabs,[18] bruised and burnt to ashes and kneaded up with oil; or else fat of the silurus.[19] In diseases of the joints, the paroxysms are modified by applying fresh frogs every now and then: some authorities recommend that they should be split asunder before being applied. The liquor from mussels[20] and other shell-fish has a tendency to make flesh.

### CHAP. 37.—REMEDIES FOR EPILEPSY.

Epileptic patients, as already[21] stated, are recommended to drink the rennet of the sea-calf,[22] mixed with mares' milk or asses' milk, or else with pomegranate juice, or, in some cases, with oxymel: some persons, too, swallow the rennet by itself, in the form of pills. Castoreum[23] is sometimes administered, in three cyathi of oxymel, to the patient fasting; but where the attacks are frequent, it is employed in the form of a clyster, with marvellous effect. The proper proportions, in this last case, are two drachmæ of castoreum, one sextarius of oil and honey, and the same quantity of water. At the moment that the patient is seized with a fit, it is a good plan to give him castoreum, with vinegar, to smell. The liver, too, of the sea-weasel[24] is given to epileptic patients, or else that of sea-mice,[25] or the blood of tortoises.

### CHAP. 38. (10.)—REMEDIES FOR FEVERS. THE FISH CALLED ASELLUS: ONE REMEDY. THE PHAGRUS: ONE REMEDY. THE BALÆNA: ONE REMEDY.

Recurrent fevers are effectually checked by making the patient taste the liver of a dolphin, just before the paroxysm comes on. Hippocampi[26] are stifled in oil of roses, and the patients are rubbed therewith in cold agues, the fish, also, being worn as an amulet by the patient. In the same way, too, the small stones that are found at full moon in the head of the fish called "asellus"[27] are worn, attached in a piece of linen cloth to the patient's body. A similar virtue is attributed to the

[18] Our crawfish.
[19] See B. ix. cc. 17, 25, 75.
[20] "Mituli." See Chapter 31 of the present Book.
[21] In B. viii. c. 49.
[22] See Note 14 above.
[23] See Chapter 13 of the present Book.
[24] See B. ix. c. 29.
[25] See B. ix. cc. 35, 76.
[26] See B. ix. c. 1.
[27] See B. ix. c. 28.

longest tooth of the river-fish called phagrus,[28] attached to the patient with a hair, provided he does not see the person who attaches it to him for five days. Frogs are boiled in oil in a spot where three roads meet, and, the flesh being first thrown away, the patients are rubbed with the decoction, by way of cure for quartan fever. Some persons, again, suffocate frogs in oil, and, after attaching them to the patient without his knowing it, anoint him with the oil. The heart of a frog, worn as an amulet, modifies the cold chills in fevers; the same, too, with oil in which the intestines of frogs have been boiled. But the best remedy for quartan fevers, is to wear attached to the body either frogs from which the claws have been[29] removed, or else the liver or heart of a bramble-frog,[30] attached in a piece of russet-coloured cloth.

River-crabs,[31] bruised in oil and water, are highly beneficial in fevers, the patient being anointed with the preparation just before the paroxysms come on: some authorities recommend the addition of pepper to the mixture. Others prescribe for quartan fevers a decoction of river-crabs in wine, boiled down to one fourth, the patient taking it at the moment of leaving the bath: by some, too, it is recommended to swallow the left eye of a river-crab. The magicians engage to cure a tertian fever, by attaching as an amulet to the patient, before sunrise, the eyes of river-crabs, the crabs when thus blinded being set at liberty in the water. They say, too, that these eyes, attached to the body in a piece of deer's hide, with the flesh of a nightingale,[32] will dispel sleep and promote watchfulness. In cases where there are symptoms of lethargy, the rennet of the balæna[33] or of the sea-calf[34] is given to the patient to smell; some persons, too, use the blood of tortoises as a liniment for lethargic patients.

Tertian fevers, it is said, may be cured by wearing one of the vertebræ[35] of a perch attached to the body, and quartan fevers by using fresh river snails, as an aliment. Some persons preserve these snails in salt for this purpose, and give them, pounded, in drink.

[28] See B. ix. c. 24.
[29] "Ablatis unguibus."
[30] "Rubeta."
[31] Our crawfish.
[32] Because the nightingale sings at night, instead of sleeping.
[33] See B. ix. cc. 2, 5, 6, 7, 15.
[34] Or seal.
[35] "Spondylus."

CHAP. 39.—REMEDIES FOR LETHARGY, CACHEXY, AND DROPSY.

Strombi,[36] left to putrefy in vinegar, act as an excitant upon lethargic patients by their smell; they are very useful, too, for the cure of cardiac diseases. For cachectic patients, where the body is wasting with consumption, tetheæ[37] are considered beneficial, mixed with rue and honey. For the cure of dropsy, dolphin's fat is melted and taken with wine, the repulsive taste of it being neutralized by first touching the nostrils with unguent or some other odoriferous substance, or else by plugging the nostrils in some way or other. The flesh of strombi, pounded and given in three heminæ of honied wine and the same quantity of water, or, if there is fever, in hydromel, is very useful for dropsy: the same, too, with the juice of river-crabs, administered with honey. Water frogs, too, are boiled with old wine and spelt,[37*] and taken as food, the liquor in which they have been boiled being drunk from the same vessel: or else the feet, head, and tail of a tortoise are cut off, and the intestines removed, the rest of the flesh being seasoned in such a manner as to allow of its being taken without loathing. River-crabs, too, eaten with their broth, are said to be very good for the cure of phthisis.

CHAP. 40.—REMEDIES FOR BURNS AND FOR ERYSIPELAS.

Burns are cured by applying ashes of calcined sea-crabs or river-crabs with oil: fish-glue, too, and calcined frogs are used as an application for scalds produced by boiling water. The same treatment also restores the hair, provided the ashes are those of river-crabs: it is generally thought, too, that the preparation should be applied with wax and bears' grease. Ashes, too, of burnt beaver-skin are very useful for these purposes. Live frogs act as a check upon erysipelas, the belly side being applied to the part affected: it is recommended, too, to attach them lengthwise by the hinder legs, so as to render them more beneficial by reason of their increased respiration.[38] Heads, too, of salted siluri[39] are reduced to ashes and applied with vinegar.

Prurigo and itch-scab, not only in man but in quadrupeds

[36] See Chapter 29 of this Book.
[37] See Chapters 30 and 31 of the present Book. [37*] See B. xviii. c. 19.
[38] "Crebriore anhelitu." [39] See B. ix. cc. 17, 25, 75.

as well, are most efficaciously treated with the liver of the pastinaca[40] boiled in oil.

CHAP. 41.—REMEDIES FOR DISEASES OF THE SINEWS.

The exterior callosity with which the flesh of purples is covered, beaten up, unites the sinews, even when they have been severed asunder. It is a good plan, for patients suffering from tetanus, to take sea-calf's rennet in wine, in doses of one obolus, as also fish-glue.[41] Persons affected with fits of trembling find much relief from castoreum,[42] provided they are well anointed with oil. I find it stated that the surmullet,[43] used as an article of diet, acts injuriously upon the sinews.

CHAP. 42.—METHODS OF ARRESTING HÆMORRHAGE AND OF LETTING BLOOD. THE POLYP: ONE REMEDY.

Fish, used as an aliment, it is generally thought, make blood. The polyp,[44] bruised and applied, arrests hæmorrhage, it is thought: in addition to which we find stated the following particulars respecting it—that of itself it emits a sort of brine, in consequence of which, there is no necessity to use any in cooking it—that it should always be sliced with a reed —and that it is spoilt by using an iron knife, becoming tainted thereby, owing to the antipathy[45] which naturally exists [between it and iron]. For the purpose also of arresting hæmorrhage, ashes of burnt frogs are applied topically, or else the dried blood of those animals. Some authorities recommend the frog to be used, that is known by the Greeks as "calamites,"[46] from the fact that it lives among reeds[47] and shrubs; it is the smallest and greenest of all the frogs, and either the blood or the ashes of it are recommended to be employed. Others, again, prescribe, in cases of bleeding at the nostrils, an injection of the ashes of young water-frogs, in the tadpole state, calcined in a new earthen vessel.

[40] Or sting-ray. See B. ix. cc. 37, 40, 67, 72.
[41] Ichthyocolla. See Chapter 24 of this Book.
[42] See Chapter 13 of this Book. [43] See B. ix. c. 30.
[44] See B. ix. c. 46.
[45] This seems to be the meaning of "naturâ dissidente," if it is the correct reading. That, however, suggested by Dalechamps would seem to be preferable, "naturâ retinente,"—"it being the nature of its flesh to cling to the knife."
[46] See Chapter 24 of this Book. [47] "Calami."

On the other hand, again, in cases where it is required to let blood, the kind of leech is used which is known among us by the name of "sanguisuga."[48] Indeed, the action of these leeches is looked upon as pretty much the same as that of the cupping-glasses[49] used in medicine, their effect being to relieve the body of superfluous blood, and to open the pores of the skin. Still, however, there is this inconvenience attending them—when they have been once applied, they create a necessity[50] for having recourse to the same treatment at about the same period in every succeeding year. Many physicians have been of opinion also, that leeches may be successfully applied in cases of gout. When gorged, they fall off in consequence of losing their hold through the weight of the blood, but if not, they must be sprinkled with salt[51] for the purpose.

Leeches are apt, however, to leave their heads buried in the flesh; the consequence of which is an incurable wound, which has caused death in many cases, that of Messalinus,[52] for example, a patrician of consular rank, after an application of leeches to his knee. When this is the case, that which was intended as a remedy is turned into an active poison;[53] a result which is to be apprehended in using the red leeches more particularly. Hence it is that when these last are employed, it is the practice to snip them with a pair of scissors while sucking; the consequence of which is, that the blood oozes forth, through a siphon, as it were, and the head, gradually contracting as the animal dies, is not left behind in the wound. There is a natural antipathy[54] existing between leeches and bugs, and hence it is that the latter are killed by the aid of a fumigation made with leeches. Ashes of beaver-skin burnt with tar, kneaded up with leek-juice, arrest bleeding at the nostrils.

### CHAP. 43.—METHODS OF EXTRACTING FOREIGN BODIES FROM THE FLESH.

To extract pointed weapons which have pierced the flesh, ashes of calcined shells of the sæpia are used, as also of the

[48] "Bloodsuckers." [49] "Cucurbitæ medicinales."

[50] This does not appear to be considered the case at the present day.

[51] A method still employed. [52] See B. x. c. 27.

[53] "Invehunt virus remedio verso." The reading is probably corrupt, but the meaning is pretty evident.

[54] See B. xxix. c. 17, and c. 47 of this Book.

purple, the meat of salted fish, bruised river-crabs, or flesh of the silurus[55] (a river-fish that is found in other streams as well as the Nilus[56]), applied either fresh or salted. The ashes also of this fish, as well as the fat, have the property of extracting pointed bodies, and the back-bone, in a calcined state, is used as a substitute for spodium.[57]

CHAP. 44.—REMEDIES FOR ULCERS, CARCINOMATA, AND CARBUNCLES.

Ulcers of a serpiginous nature, as also the fleshy excrescences which make their appearance in them, are kept in check by applying ashes of calcined heads of mænæ,[58] or else ashes of the silurus.[59] Carcinomata, too, are treated with heads of salted perch, their efficacy being considerably increased by using some salt along with the ashes, and kneading them up with heads of cunila[60] and olive-oil. Ashes of sea-crabs, calcined with lead, arrest the progress of carcinomatous sores; a purpose for which ashes of river-crabs, in combination with honey and fine lint, are equally useful; though there are some authorities which prefer mixing alum and barley with the ashes. Phagedænic ulcers are cured by an application of dried silurus pounded with sandarach;[61] malignant cancers, corrosive ulcers, and putrid sores, by the agency of stale cybium.[62]

Maggots that breed in sores are removed by applying frogs' gall; and fistulas are opened and dried by introducing a tent made of salt fish, with a dossil of lint. Salt fish, kneaded up and applied in the form of a plaster, will remove all proud flesh in the course of a day, and will arrest the further progress of putrid and serpiginous ulcers. Alex,[63] applied in lint, acts detergently, also, upon ulcers; the same, too, with the ashes of calcined shells of sea-urchins. Salted slices of the coracinus[64] disperse carbuncles, an effect equally produced by the ashes of salted surmullets.[65] Some persons, however, use

[55] See B. ix. cc. 17, 25, 75.

[56] See B. ix. c. 17. Ajasson says that it is also found of enormous size, in the Danube and in the Theisse.

[57] See B. xxxiv. c. 33.

[58] See B. ix. c. 42.

[59] See Note 55 above.

[60] "Cunila capitata." See B. xx. c. 65.

[61] See B. xxxiv. c. 55.

[62] Tunny sliced and salted; see B. ix. c. 18.

[63] See B. xxxi. c. 44.

[64] See B. ix. cc. 24, 32.

[65] See B. ix. c. 30.

the head only of the surmullet, in combination with honey or with the flesh of the coracinus. Ashes of the murex, applied with oil, disperse tumours, and the gall of the sea-scorpion makes scars disappear.

CHAP. 45.—REMEDIES FOR WARTS, AND FOR MALFORMED NAILS. THE GLANIS: ONE REMEDY.

To remove warts, the liver of the glanis[66] is applied to the part; ashes also of heads of mænæ[67] bruised with garlic—substances which should be used raw where it is thyme-warts[68] that require to be removed—the gall of the red sea-scorpion,[68*] smarides[69] pounded and applied, or alex[70] thoroughly boiled. Ashes of calcined heads of mænæ[71] are used to rectify malformed nails.

CHAP. 46.—REMEDIES FOR FEMALE DISEASES. THE GLAUCISCUS: ONE REMEDY.

The milk is increased in females by eating the glauciscus[72] in its own liquor, or else smarides[73] with a ptisan, or boiled with fennel. Ashes of calcined shells of the murex or purple, applied with honey, are an effectual cure for affections of the mamillæ; river-crabs, too, and sea-crabs, applied topically, are equally good. The meat of the murex, applied to the mamillæ, removes hairs[74] growing upon those parts. The squatina,[75] applied topically, prevents the mamillæ from becoming too distended. Lint greased with dolphin's[76] fat, and then ignited, produces a smoke which acts as an excitant upon females suffering from hysterical suffocations; the same, too, with strombi,[77] left to putrefy in vinegar. Heads of perch or of

[66] See B. ix. c. 67. [67] See Note 58 above. [68] "Thymia."

[68*] Ajasson thinks that the ancients knew but one kind of sea-scorpion, but in different states, the Cottus scorpius, probably, of Linnæus.

[69] See Chapter 34 of this Book. [70] See Note 63 above.

[71] See Note 58 above.

[72] This fish has not been identified. It is possible, however, that it may be the same as the "glaucus" mentioned in B. ix. c. 25.

[73] See Note 69 above. [74] See B. xxvi. c. 92.

[75] See B. ix. cc. 14, 40, 67.

[76] An asserted remedy, founded, as Ajasson remarks, upon nothing but a pun, the resemblance between δελφίς, a "dolphin," and δελφύς, the "womb."

[77] See Chapters 29 and 39 of this Book.

mænæ,[78] calcined and mixed with salt, oil, and cunila,[79] are curative of diseases of the uterus: used as a fumigation, they bring away the afterbirth. Fat,[80] too, of the sea-calf, melted by the agency of fire, is introduced into the nostrils of females when swooning from hysterical suffocations; and for a similar purpose, the rennet of that animal is applied as a pessary, in wool.

The pulmo marinus,[81] attached to the body as an amulet, is an excellent promoter of menstruation; an effect which is equally produced by pounding live sea-urchins, and taking them in sweet wine. River-crabs,[82] bruised in wine, and taken internally, arrest menstruation. The silurus,[83] that of Africa[84] more particularly, used as a fumigation, facilitates parturition, it is said. Crabs, taken in water, arrest menstruation; but used with hyssop, they act as an emmenagogue, we are told. In cases, too, where the infant is in danger of suffocation at the moment of delivery, a similar drink, administered to the mother, is highly efficacious. Crabs, too, either fresh or dried, are taken in drink, for the purpose of preventing abortion. Hippocrates[85] prescribes them as a promoter of menstruation, and as an expellent of the dead fœtus, beaten up with five[86] roots of lapathum and rue and some soot, and administered in honied wine. Crabs, boiled and taken in their liquor, with lapathum[87] and parsley, promote the menstrual discharge, and increase the milk. In cases of fever, attended with pains in the head and throbbing of the eyes, crabs are said to be highly beneficial to females, given in astringent wine.

Castoreum,[88] taken in honied wine, is useful as a promoter of menstruation: in cases of hysterical suffocation, it is given

[78] See B. ix. c. 42.
[79] See B. xx. c. 65.
[80] In other words, seal-oil.
[81] Or sea-lungs. See Chapter 36 of this Book.
[82] Or crawfish.
[83] See B. ix. c. 17; also Chapter 43 of this Book.
[84] Meaning Egypt, probably; see the passages referred to in the preceding note.
[85] De Morb. Mulier. I. 128.
[86] We would adopt the suggestion of M. Ian, and read "quinis cum," in preference to "cum quinis;" "five crabs with roots of lapathum and rue."
[87] See B. xx. c. 85.
[88] See Chapter 13 of the present Book.

to the patient to smell at with pitch and vinegar, or else it is made up into tablets and used as a pessary. For the purpose also of bringing away the afterbirth it is found a useful plan to employ castoreum with panax,[89] in four cyathi of wine; and in cases where the patient is suffering from cold, in doses of three oboli. If, however, a female in a state of pregnancy should happen to step over castoreum, or over the beaver itself, abortion, it is said, will be the sure result: so, too, if castoreum is only held over a pregnant woman's head, there will be great danger of miscarriage.

There is a very marvellous fact, too, that I find stated in reference to the torpedo:[90] if it is caught at the time that the moon is in Libra, and kept in the open air for three days, it will always facilitate parturition, as often as it is introduced into the apartment of a woman in labour. The sting, too, of the pastinaca,[91] attached to the navel, is generally thought to have the property of facilitating delivery: it must be taken, however, from the fish while alive; which done, the fish must be returned to the sea. I find it stated by some authorities that there is a substance called "ostraceum," which is also spoken of as "onyx"[92] by others; that, used as a fumigation, it is wonderfully beneficial for suffocations of the uterus; that in smell it resembles castoreum, and is still more efficacious, if burnt with this last substance; and that in a calcined state it has the property of healing inveterate ulcers, and cancerous sores of a malignant nature. As to carbuncles and carcinomatous sores upon the secret parts of females, there is nothing more efficacious, it is said, than a female crab beaten up, just after full moon, with flower of salt[93] and applied with water.

## CHAP. 47.—METHODS OF REMOVING SUPERFLUOUS HAIR. DEPILATORIES.

Depilatories are prepared from the blood, gall, and liver of the tunny, either fresh or preserved; as also from pounded liver of the same fish, preserved with cedar resin[94] in a leaden box; a re-

[89] See B. xii. c. 57.
[90] See B. ix. cc. 24, 48, 74, 75.
[91] Or sting-ray. See B. ix. c. 72.
[92] The callosity is here meant, Hardouin supposes, which covers the purple in the shell. See Chapter 41 of this Book.
[93] "Salis flore." See B. xxxi. c. 42.
[94] "Cedrium." See B. xvi. c. 21, and B. xxiv. c. 11.

cipe which we find given by the midwife Salpe[95] for disguising the age of boys on sale for slaves. A similar property belongs to the pulmo marinus,[96] to the blood and gall of the sea-hare, and to the sea-hare itself, stifled in oil. The same, too, with ashes of burnt crabs or sea scolopendræ,[97] mixed with oil; sea-nettles,[98] bruised in squill vinegar; and brains of the torpedo[99] applied with alum on the sixteenth day of the moon. The thick matter emitted by the small frogs, which we have described when treating[1] of eye-diseases, is a most efficient depilatory, if applied fresh: the same, too, with the frog itself, dried and pounded, and then boiled down to one-third in three heminæ of water, or else boiled in a copper vessel with oil in a like proportion. Others, again, prepare a depilatory from fifteen frogs, in manner already[2] stated under the head of remedies for the eyes. Leeches, also, grilled in an earthen vessel, and applied with vinegar, have the same property as a depilatory; the very odour, too, which attaches to the persons who thus burn them is singularly efficacious for killing bugs.[3] Cases are to be found, too, where persons have used castoreum with honey, for many days together, as a depilatory. In the case, however, of every depilatory, the hairs should always be removed before it is applied.

### CHAP. 48.—REMEDIES FOR THE DISEASES OF INFANTS.

Dentition in infants is promoted, and the gums greatly relieved, by rubbing them with ashes of a dolphin's teeth, mixed with honey, or else by touching the gums with the tooth itself of that fish. One of these teeth, worn as an amulet, is a preventive of sudden frights;[4] the tooth of the dog-fish[5] being also possessed of a similar property. As to ulcers which make their appearance in the ears, or in any other parts of the body, they may be cured by applying the liquor of river-crabs,[6] with barley-meal. These crabs, too, bruised in oil and employed as a friction, are very useful for other kinds of maladies. A

[95] See end of B. xxviii.
[96] Or "sea-lungs." See Chapter 36 of this Book.
[97] See B. ix. c. 67
[98] See B. ix. c. 68.
[99] See Note 90 above.
[1] In Chapter 24 of this Book.
[2] See the preceding Note.
[3] See Chapter 42 of this Book.
[4] In the case of infants, probably.
[5] "Canicula." See B. ix. cc. 11, 70.
[6] Or "crawfish."

sponge moistened with cold water from time to time,[7] or a frog applied, the back part to the head, is a most efficacious cure for siriasis[8] in infants. When the frog is removed, it will be found quite dry, they say.

CHAP. 49.—METHODS OF PREVENTING INTOXICATION. THE FISH CALLED RUBELLIO: ONE REMEDY. THE EEL: ONE REMEDY. THE GRAPE-FISH: ONE REMEDY.

A surmullet[9] stifled in wine; the fish called "rubellio;"[10] or a couple of eels similarly treated; or a grapefish,[11] left to putrefy in wine, all of them, produce an aversion to wine in those who drink thereof.

CHAP. 50.—ANTAPHRODISIACS AND APHRODISIACS. THE HIPPOPOTAMUS: ONE REMEDY. THE CROCODILE: ONE REMEDY.

In the number of antaphrodisiacs, we have the echeneïs;[12] the skin from the left side of the forehead of the hippopotamus,[13] attached to the body in lamb-skin; and the gall of a live torpedo,[14] applied to the generative organs.

The following substances act as aphrodisiacs—the flesh of river-snails, preserved in salt and given to drink in wine; the erythinus[15] taken as food; the liver of the frog called "diopetes" or "calamites"[16] attached to the body in a small piece of crane's skin; the eye-tooth of a crocodile, attached to the arm; the hippocampus;[17] and the sinews of a bramble-frog,[18] worn as an amulet upon the right arm. A bramble-frog, attached to the body in a piece of fresh sheep-skin, effectually puts an end to love.

CHAP. 51.—REMEDIES FOR THE DISEASES OF ANIMALS.

A decoction of frogs in water, reduced to the form of a lini-

[7] "Crebro humefacto" seems a preferable reading to "cerebro humefacto," though supported by the Bamberg MS.

[8] See B. xxii. c. 29, and B. xxx. c. 47.

[9] See B. ix. c. 30.

[10] Identified with the "erythinus" of B. ix. c. 23, and mentioned in the next Chapter.

[11] See B. ix. c. 1.

[12] Or Remora. See B. ix. c. 41.

[13] See B. viii. c. 39.

[14] See Note 90 above.

[15] See B. ix. c. 23.

[16] See Chapter 24 of this Book.

[17] See B. ix. c. 1.

[18] "Rubeta." See B. viii. c. 48, B. xi. cc. 19, 76, 116, B. xxv. c. 76, and c. 18 of this Book.

ment, is curative of itch-scab in horses; indeed, it is said, that a horse, when once treated in this manner, will never again be attacked with the disease. Salpe says that if a live frog is given to dogs in their mess, they will lose the power of barking.

CHAP. 52.— OTHER AQUATIC PRODUCTIONS. ADARCA OR CALAMOCHNOS: THREE REMEDIES. REEDS: EIGHT REMEDIES. THE INK OF THE SÆPIA.

Among the aquatic productions ought also to be mentioned calamochnos, in Latin known as "adarea,"[19] a substance which collects about small reeds, from a mixture of the foam of fresh and of sea water. It possesses certain caustic properties, and hence it is that it is so useful as an ingredient in "acopa"[20] and as a remedy for cold shiverings; it is used too, for removing freckles upon the face of females. And now we are speaking of adarca, the reed ought equally to be mentioned. The root of that known as the "phragmites,"[21] pounded fresh, is curative of sprains, and, applied topically with vinegar, removes pains in the spine. The calcined bark, too, of the Cyprian[22] reed, known as the "donax," is curative of alopecy and inveterate ulcers; and its leaves are good for the extraction of foreign bodies adhering to the flesh, and for the cure of erysipelas: should, however, the flower of the panicle happen to enter the ears, deafness[23] is the consequence.

The ink of the sæpia[24] is possessed of such remarkable potency, that if it is put into a lamp, Anaxilaüs tells us, the light will become entirely changed,[25] and all present will look as black as Æthiopians. The bramble-frog, boiled in water, and given to swine with their drink, is curative of the maladies with which they are affected; an effect equally produced by the ashes of any other kind of frog. If wood is rubbed with the pulmo marinus,[26] it will have all the appearance of being

[19] See B. xv. c. 36, and B. xx. c. 22.

[20] "Remedies for lassitude." See B. xxiii. cc. 45, 80; B. xxvii. c. 13, and B. xxix. cc. 13, 37.

[21] See B. xvi. c. 66, and B. xxiv. c. 50.

[22] See B. xvi. c. 66, and B. xxiv. c. 50.

[23] See B. xxiv. c. 50.

[24] See B. ix. cc. 20, 44, 74, 78.

[25] "Ablato priore lumine." Hardouin justly ridicules this assertion. This ink, as Ajasson remarks, is intensely black.

[26] See B. ix. c. 71, and Chapter 36 of this Book.

on fire; so much so, indeed, that a walking-stick, thus treated, will light the way like a torch.[27]

CHAP. 53. (11.)—THE NAMES OF ALL THE ANIMALS THAT EXIST IN THE SEA, ONE HUNDRED AND SEVENTY-SIX IN NUMBER.

Having now completed our exposition of the properties which belong to the aquatic productions, it would appear by no means foreign to my purpose to give a list of the various animated beings which inhabit the seas; so many as these are in number, of such vast extent, and not only making their way into the interior of the land to a distance of so many miles, but also surrounding the exterior of it to an extent almost equal to that of the world itself. These animals, it is generally considered, embrace one hundred and seventy-six different[28] species, and it will be my object to set them forth, each by its distinct name, a thing that cannot possibly be done in reference to the terrestrial animals and the birds.

For, in fact, we are by no means acquainted with all the wild beasts or all the birds that are to be found in India, Æthiopia, Scythia, or the desert regions of the earth; and even of man himself there are numerous varieties, which as yet we have been unable[29] to make ourselves acquainted with. In addition, too, to the various countries above mentioned, we have Taprobane[30] and other isles of the Ocean, about which so many fabulous stories are related. Surely then, every one must allow that it is quite impossible to comprise every species of animal in one general view for the information of mankind. And yet, by Hercules! in the sea and in the Ocean, vast as it is, there exists nothing that is unknown to us,[31] and, a truly marvellous fact, it is with those things which Nature has concealed in the deep that we are the best acquainted!

To begin then with the monsters[32] that are found in this ele-

[27] This *seems* to be the meaning of "adeo ut baculum ita præluceat."

[28] Some MSS. have here "164," the Bamberg MS. and others "144." Owing to the corrupt state of the text in many parts of this Chapter, it is impossible to say which reading is correct.

[29] "Invenire non potuimus" seems a preferable reading to "invenire potuimus."

[30] Modern Ceylon. See B. vi. cc. 23, 24, B. vii. c. 2, and B. ix. c. 54.

[31] "Quæ nascuntur certa sunt." A bold assertion. The various fishes now known amount to many thousands; and there are still vast numbers, no doubt, with which science has not hitherto become acquainted.

[32] "Belluæ."

ment. We here find sea-trees,[33] physeters,[34] balænæ,[35] pistrices,[36] tritons,[37] nereids,[38] elephants,[39] the creatures known as sea-men,[40] sea-wheels,[41] orcæ,[42] sea-rams,[43] musculi,[44] other fish too with the form of rams,[45] dolphins,[46] sea-calves,[47] so celebrated by Homer,[48] tortoises[49] to minister to our luxury, and beavers, so extensively employed in medicine,[50] to which class belongs the otter,[51] an animal which we nowhere find frequenting the sea, it being only of the marine animals that we are speaking. There are dog-fish,[52] also, drinones,[53] cornutæ,[54] sword-fish,[55] saw-fish,[56] hippopotami[57] and crocodiles,[58] common to the sea, the land, and the rivers; tunnies[59] also, thynnides, siluri,[59*] coracini,[60] and perch,[61] common to the sea only and to rivers.

To the sea only, belong also the acipenser,[62] the dorade,[63] the asellus,[64] the acharne,[65] the aphye,[66] the alopex,[67] the

[33] He may possibly allude to the plants mentioned in B. xiii. cc. 48, 49, 50, 51, and 52; though Hardouin seems to think it impossible to discover what he means, seeing that he is speaking of sea-monsters, beings with animal life. See also B. ix. c. 3.

[34] See B. ix. c. 3. [35] See B. ix. cc. 2, 5.

[36] See B. ix. c. 3; probably the same as the "pristis" of B. ix. c. 2.

[37] See B. ix. c. 4. [38] See B. ix. c. 4. [39] See B. ix. c. 4.

[40] "Homines marini." See B. ix. c. 4.

[41] See B. ix. c. 3. [42] See B. ix. c. 5. [43] See B. ix. c. 4.

[44] See B. ix. c. 88, and B. xi. c. 62. [45] See B. ix. c. 67.

[46] See B. ix. c. 7. [47] See B. ix. c. 15. [48] Odyssey, B. iv. l. 436.

[49] Turtles. See B. ix. c. 13. [50] See Chapter 13 of this Book.

[51] See B. viii. c. 47; also Chapters 26 and 32 of this Book.

[52] See B. ix. c. 70.

[53] The name of a fish unknown. Sillig conjectures that Pliny may have had in view the fish called "dromades" by Aristotle. "Dromones" is another reading, a sort of small crab.

[54] Littré translates this "horned ray."

[55] "Gladii." See B. ix. cc. 1, 21; the same, probably, as the "xiphias" mentioned at the end of this Chapter.

[56] See B. ix. c. 1. [57] See B. viii. c. 39. [58] See B. viii. c. 37.

[59] See B. ix. cc. 18, 20. Holland says, "Some take 'thynni' for the milters, and 'thynnides' for the spawners." In his translation, however, he identifies the "thynnides" with the "pelamides," or young tunnies, mentioned in this Chapter, and in B. ix. c. 18.

[59*] See B. ix. cc. 17, 25. [60] See B. ix. cc. 24, 32.

[61] "Percæ." See B. ix. c. 24. [62] See B. ix. c. 27.

[63] "Aurata." See B. ix. c. 25. [64] See B. ix. cc. 25, 28.

[65] Considered by some to be the whiting. Littré identifies it with the Perca labrax of Linnæus.

[66] See B. ix. c. 74; where it is called "apua."

[67] The "sea-fox." See B. ix. c. 67.

eel,[68] the araneus,[69] the boca,[70] the batia,[71] the bacchus,[72] the batrachus,[73] the belonæ,[74] known to us as "aculeati,"[75] the balanus,[76] the corvus,[77] the citharus, the least esteemed of all the turbots, the chalcis,[78] the cobio,[79] the callarias,[80] which would belong to the genus of the aselli[81] were it not smaller; the colias,[82] otherwise known as the fish of Parium[83] or of Sexita,[84] this last from a place of that name in Bætica its native region, the smallest, too, of the lacerti;[85] the colias of the Mæotis, the next smallest of the lacerti; the cybium,[86] (the name given, when cut into pieces, to the pelamis[87] which returns at the end of forty days from the Euxine to the Palus Mæotis); the cordyla[88]—which is also a small pelamis, so called at the time when it enters the Euxine from the Palus Mæotis—the cantharus,[89] the callionymus[90] or uranoscopus, the cinædus, the only[91] fish that is of a yellow colour; the cnide, known to us as the sea-nettle;[92] the different kinds of

[68] "Anguilla." See B. ix. cc. 2, 37, 38.

[69] Or sea-spider. See B. ix. c. 72.

[70] The same as the *bogue* of the coasts of Narbonne, according to Rondelet, B. v. c. 11.

[71] See Chapter 25 of the present Book.

[72] See B. ix. c. 28.

[73] Or frog-fish. See B. ix. c. 40.

[74] "Sea-needles." Identified by some with the horn-fish, horn-back, or needle-fish.

[75] "Needle-fish."

[76] "Acorn-fish." A shell-fish, according to Rondelet, B. i. c. 30, which frequents the clefts of rocks.

[77] "Sea-raven." According to some authorities, identical with the Trigla hirundo of Linnæus. Hardouin says that it is the fish called *capone* by the people of Rome.

[78] See B. ix. c. 71

[79] The same, probably, as the "gobio," mentioned in B. ix. c. 83.

[80] See B. ix. c. 28.

[81] See B. ix. cc. 25, 28.

[82] Thought by some to be a kind of mackerel, by others to be a tunny. Rondelet says, B. viii. c. 8, that it is a fish still called *coguiol* by the people of Marseilles.

[83] In the Hellespont.

[84] Or Sexis, according to Pintianus.

[85] Or "sea-lizards."

[86] See B. ix. c. 18. He surely does not intend to include this among his "one hundred and seventy-six different kinds of aquatic animals"!

[87] Or young tunny. See B. ix. c. 18.

[88] See B. ix. c. 18.

[89] Rondelet says, B. v. c. 4, that it is a fish still known (in his time) as *cantheno*, by the people of Narbonne. Ovid, in his Halieuticon, l. 103, speaks of the unpleasant flavour of its juices.

[90] See Chapter 24 of the present Book.

[91] Of course, as Hardouin says, he does not include the shell-fishes in this assertion. The fish with this uncomplimentary name has not been identified.

[92] "Urtica." See B. ix. c. 68.

crabs,[93] the striated chemæ,[94] the smooth chemæ, the chemæ belonging to the genus of pelorides,[95] all differing in the variety of their colours and in the roundness of the shells; the chemæ glycymarides,[96] still larger than the pelorides; the coluthia or coryphia;[97] the various kinds of shellfish, among which we find the pearl oysters,[98] the cochleæ,[99] (belonging to which class are the pentadactyli,[1]) the helices,[2] by some known as actinophori, the spokes[3] on whose shells are used for musical purposes;[4] and, in addition to these, the round cochleæ, the shells of which are used in measuring oil, as also the sea-cucumber,[5] the cynopos,[6] the cammarus,[7] and the cynosdexia.[8]

Next to these we have the sea-dragon,[9] a fish which, according to some, is altogether distinct from the dracunculus,[10] and resembles the gerricula in appearance, it having on the gills a stickle which points towards the tail and inflicts a wound like that of the scorpion[11] when the fish is handled—the erythinus,[12] the echeneis,[13] the sea-urchin,[14] the sea-elephant, a black kind of crayfish, with four forked legs, in addition to two arms with double joints, and furnished, each of them, with a pair of claws, indented at the edge; the faber,[15] also, or zæus, the glauciscus,[16] the glanis,[17] the gonger,[18] the gerres,[19]

[93] See B. ix. c. 51.
[94] Or "chamæ;" different varieties of gaping cockles.
[95] Or "monster"-cockles. [96] Or "sweet" cockles.
[97] See Chapter 27 of this Book. [98] See B. ix. c. 54.
[99] Or "cochli." As to the various kinds of cochleæ, see B. ix. c. 51.
[1] "Five-fingered." So called from some peculiarity in their shape.
[2] Considered by some to be the striated mussel, the Pecten of Linnæus.
[3] "Radii."
[4] This is not improbably the meaning of the very elliptical sentence, "Quibus radii cantant." [5] See B. ix. c. 1.
[6] The "dog's-face," literally. This fish has not been identified: indeed the reading is doubtful.
[7] A kind of crab or crayfish. See B. xxvii. c. 2.
[8] Literally, the "dog's right hand." This fish has not been identified: Harduin suggests that it may have been a zoöphyte.
[9] See B. ix. c. 43, and Chapters 17 and 26 of this Book.
[10] Or "little dragon." [11] The sea-scorpion, probably.
[12] See B. ix. c. 23; also Chapters 31 and 50 of this Book.
[13] Or Remora. See B. ix. c. 41; also Chapter 1 of this Book.
[14] See B. ix. cc. 14, 74. [15] See B. ix. c. 32.
[16] See Chapter 46 of the present Book. [17] See B. ix. c. 67.
[18] Possibly the same as the "Conger" of B. ix. c. 24.
[19] A fish similar, most probably, to the "gerricula" previously mentioned. Holland calls it a "pilchard" or "herring."

the galeos,[20] the garos, [21] the hippos,[22] the hippuros,[23] the hirundo,[24] the halipleumon,[25] the hippocampus,[26] the hepar,[27] the ictinus[28] and the iulis.[29] There are various kinds also of lacerti,[30] the springing loligo,[31] the crayfish,[32] the lantern-fish,[33] the lepas,[34] the larinus, the sea-hare,[35] and the sea-lion,[36] with arms like those of the crab, and in the other parts of the body like the cray-fish.

We have the surmullet[37] also, the sea black-bird,[38] highly esteemed among the rock-fish; the mullet,[39] the melanurus,[40] the mæna,[41] the mæotis,[42] the muræna,[43] the mys,[44] the mitulus,[45] the myiscus,[46] the murex,[47] the oculata,[48] the ophidion,[49] the oyster,[50] the otia,[51] the orcynus—the largest of all the pelamides[52] and one that never returns to the Palus Mæotis, like the tritomus[53] in appearance, and best when old—the orbis,[54]

[20] A kind of squalus. See B. ix. c. 70. [21] See B. xxxi. c. 43.
[22] Or "horse." The crab, probably, mentioned in B. ix. c. 51.
[23] See B. ix. c. 24. [24] Or sea-swallow. See B. ix. c. 43.
[25] "Lungs of the sea." The same as the Pulmones, or sea-lungs, mentioned in B. ix. c. 71, and in Chapter 36 of this Book.
[26] See B. ix. c. 1.
[27] Or "sea-liver." A sort of rock-fish, according to Athenæus.
[28] The same as the "milvus" or "sea-kite," mentioned in B. ix. c. 43.
[29] See Chapter 31 of this Book. Instead of this fish and the preceding one, most of the editions mention the "elacatenes," a cetaceous fish, according to Athenæus, much used for salting.
[30] "Sea-lizards." [31] See B. ix. c. 45.
[32] "Locusta." See B. ix. c. 50. [33] "Lucerna." See B. ix. c. 43.
[34] Neither this fish nor the "larinus" has been identified.
[35] See B. ix. c. 72, and Chapter 3 of this Book.
[36] See B. ix. c. 51. [37] See B. ix. c. 30.
[38] See B. ix. c. 20. [39] See B. ix. c. 26.
[40] See Chapter 8 of this Book. Holland translates this—"The blacke taile perch, (which some take for a ruffe, others for a sea-breame)."
[41] See B. ix. c. 42.
[42] A fish of the Nile, according to Ælian. "Meryx" is another reading, a kind of Scarus, it is thought.
[43] See B. ix. c. 23. [44] A shell-fish. See B. ix. c. 56.
[45] See Chapter 31 of this Book.
[46] See Chapter 31 of this Book. [47] See B. ix. c. 61.
[48] The "eye-fish." A kind of lamprey has been suggested.
[49] See Chapter 35 of this Book. [50] See B. ix. c. 21.
[51] "Sea-ears." A kind of oyster, Holland says.
[52] See B. ix. c. 20.
[53] He speaks of it as a kind of Pelamis, a little further on.
[54] The sun-fish. See Chapter 5 of this Book.

the orthagoriscus,[55] the phager,[56] the phycis[57] a rock-fish, the pelamis,[58] (the largest kind of which is called "apolectum,"[59] and is tougher than the tritomus) the sea-pig,[60] the phthir,[61] the sea-sparrow,[62] the pastinaca,[63] the several varieties of the polyp,[64] the scallop,[65] which is larger and more swarthy in summer than at other times, and the most esteemed of which are those of Mitylene,[66] Tyndaris,[67] Salonæ,[68] Altinum,[69] the island of Chios, and Alexandria in Egypt; the small scallop,[70] the purple, [71] the pegris,[72] the pinna,[73] the pinnotheres,[74] the rhine[75] or squalus of the Latins, the turbot,[76] the scarus[77] a fish which holds the first rank at the present day; the sole,[78] the sargus,[79] the squilla,[80] the sarda[81]—such being the name of an elongated pelamis[82] which comes from the Ocean; the scomber,[83] the salpa,[84] the sorus,[85] the scorpæna,[86] the sea-scorpion,[87] the solas,[88] the sciæna,[89] the sciadeus,[90] the scolopendra,[91] the smyrus,[92] the sæpia,[93] the strombus,[94] the solen,[95] otherwise known as the

[55] The same, probably, as the "orbis." See Chapters 5 and 9 of the present Book. [56] Or phagrus. See B. ix. c. 24.
[57] See B. ix. c. 42. [58] A young tunny. See B. ix. c. 20.
[59] A "choice bit." See B. ix. c. 20.
[60] See B. ix. c. 17. [61] This fish has not been identified.
[62] See B. ix. c. 36. [63] Or sting-ray. See B. ix. c. 40.
[64] See B. ix. c. 48. [65] See B. ix. c. 51. [66] See B. v. c. 39.
[67] Probably the place of that name in Sicily, mentioned in B. ii. c. 94, and B. iii. c. 14. [68] See B. iii. c. 26.
[69] See B. iii. c. 22. [70] "Pectunculus." See Note 65 above.
[71] See B. ix. c. 60. [72] An unknown fish. The reading is doubtful.
[73] See B. ix. c. 66. [74] See B. ix. c. 66. [75] See B. ix. c. 40.
[76] "Rhombus." See B. ix. c. 36.
[77] See B. ix. c. 29. [78] See B. ix. c. 36. [79] See B. ix. c. 30.
[80] The same, perhaps, as the "pinnotheres" of B. ix. c. 66, a kind of shrimp. [81] See Chapter 17 of this Book.
[82] See B. ix. c. 18. [83] See B. ix. c. 19. [84] See B. ix. c. 32.
[85] Considered by Sillig to be the same as the "Saurus" of Chapter 28 of this Book; the "sea-lizard," apparently.
[86] It does not seem to have been identified; though Rondelet says that it is the same as the *Rascasse* of the Mediterranean.
[87] See B. xx. c. 53, and Chapters 23, 30, 32, 34, and 35 of this Book.
[88] This fish has not been identified; indeed the reading is very doubtful.
[89] See B. ix. c. 24.
[90] A fish similar to the preceding one, probably; some kind of ombre, Littré thinks. [91] See B. ix. c. 67.
[92] Probably the same as the "Myrus" of B. ix. c. 39.
[93] See B. ix. c. 45. [94] See Chapter 30 of this Book.
[95] See Chapter 32 of this Book.

aulos, donax, onyx or dactylus; the spondylus,[96] the smaris,[97] the starfish,[98] and the sponges.[99] There is the sea-thrush[1] also, famous among the rock-fish, the thynnis,[2] the thranis, by some writers known as the xiphias;[3] the thrissa,[4] the torpedo,[5] the tethea,[6] the tritomus, a large kind of pelamis,[7] which admits of being cut into three cybia;[8] the shells of Venus,[9] the grape-fish,[10] and the xiphias.[11]

### CHAP. 54.—ADDITIONAL NAMES OF FISHES FOUND IN THE POEM OF OVID.

To the above enumeration we will add some names given in the poem of Ovid,[12] which are not to be found in any other writer: species, however, which are probably peculiar to the Euxine, on the shores[13] of which he commenced that work towards the close of his life. The fishes thus mentioned by him are the sea-ox, the cercyrus, that dwells among the rocks, the orphus,[14] the red erythinus,[15] the iulus,[16] the tinted mormyr, the chrysophrys[17] a fish of a golden colour, the parus,[18] the tragus,[19] the melanurus[20] remarkable for the beauty of its tail, and the epodes,[21] a flat fish.

In addition to these remarkable kinds of fishes, the same poet tells us that the channes[22] conceives of itself, that the

[96] A sort of mollusk, Littré thinks. There is a shell-fish known as the Spondylus gæderopus of Linnæus.
[97] See Chapters 34, 45, and 46, of this Book. [98] See B. ix. c. 86.
[99] See B. ix. c. 69. [1] See B. ix. c. 20.
[2] A sort of tunny, probably.
[3] See Chapter 6 of this Book. Probably the same as the "gladius" of this Chapter, and of B. ix. cc. 1, 21.
[4] Considered by Littré to be the Shad. [5] See B. ix. c. 67.
[6] See Chapter 30 of this Book. [7] See B. ix. c. 18.
[8] See B. ix. c. 18. [9] See B. ix. c. 52, and Chapter 1 of this Book.
[10] See B. ix. c. 1, and c. 49 of this Book. [11] See Note 3 above.
[12] The Halieuticon, already mentioned in Chapter 5 of this Book.
[13] At the town of Tomi, whither he was banished by Augustus Cæsar.
[14] See B. ix. c. 24.
[15] See B. ix. cc. 23, 77, and Chapters 31, 50, of this Book.
[16] The same, probably, as the "iulis" mentioned in the preceding Chapter.
[17] The "golden brow." The same as the "Aurata" or "dorade" of B. ix. c. 25, and Chapters 16 and 53 of this Book.
[18] An unknown fish; the reading is doubtful.
[19] The "goat-fish." It does not appear to have been identified.
[20] Literally, the "black tail." See the preceding Chapter.
[21] According to Rondelet, a fish resembling the Coracinus.
[22] See B. ix. c. 23.

glaucus[23] never makes its appearance in summer, that the pompilus[24] always accompanies vessels in their course, and that the chromis[25] makes its nest in the water. The helops, he says, is unknown to our waters; from which it would appear that those are in error who look upon it as identical with our acipenser.[26] Many persons have given the preference to the helops before all other fish, in point of flavour.

There are several fishes also, which have been mentioned by no author; such, for instance, as the one called "sudis" by the Latins, and "sphyrene" by the Greeks, names which indicate the peculiar form of its muzzle.[27] It is one of the very largest kinds, but rarely found, and by no means of inferior flavour. "Perna," too, is the name given to a kind of shell-fish, found in vast numbers in the vicinity of the islands of the Euxine. These fish are found firmly planted in the sand, resembling in appearance the long shank[28] of a hog. Opening wide their shells, where there is sufficient space, they lie in wait for their prey; this opening being not less than a foot in breadth, and the edges of it garnished around with teeth closely set, much resembling the teeth of a comb in form. Within the shell, the meat consists of a vast lump of flesh. I once saw, too, a fish called the "hyæna,"[29] which had been caught off the island of Ænaria.[30]

In addition to these animals, there are certain excretions thrown up by the sea, which do not merit any further notice, and indeed ought to be reckoned among the sea-weeds, rather than looked upon as animated beings.

SUMMARY.—Remedies, narratives, and observations, nine hundred and ninety.

ROMAN AUTHORS QUOTED.—Licinius Macer,[31] Trebius Niger,[32]

[23] See B. ix. c. 25. [24] See B. ix. c. 47.
[25] See B. ix. c. 42.
[26] See B. ix. c. 27. Ajasson is of opinion that the "helops" is the Russian sturgeon, the "acipenser," the common sturgeon.
[27] Resembling a "stake" in appearance. It has been suggested that this is the Esox sphyræna.
[28] "Perna." Hardouin says that from the diminutive of this, "pernula," the modern word "pearl" is derived.
[29] A sort of "tursio," Dalechamps says. See B. ix. c. 11.
[30] See B. iii. c. 12. [31] See end of B. xix. [32] See end of B. viii.

Sextius Niger[33] who wrote in Greek, the Poet Ovid,[34] Cassius Hemina,[35] Mæcenas,[36] Iacchus,[37] Sornatius.[38]

Foreign Authors quoted. — Juba,[39] Andreas,[40] Salpe,[41] Apion,[42] Pelops,[43] Apelles,[44] Thrasyllus,[45] Nicander.[46]

[33] See end of B. xii.
[34] See end of B. xviii.
[35] See end of B. xii.
[36] See end of B. ix.
[37] According to Suetonius, Fescennius Iacchus was a grammarian who taught in Cisalpine Gaul. See also B. xxxvii. c. 54.
[38] See end of B. xxxi.
[39] See end of B. v.
[40] See end of B. xx.
[41] See end of B. xxviii.
[42] See end of B. xxx.
[43] See end of B. xxxi.
[44] See end of B. xxviii.
[45] See end of B. ii.
[46] See end of B. viii.

# BOOK XXXIII.

## THE NATURAL HISTORY OF METALS.[1]

### CHAP. 1. (1.)—METALS.

WE are now about to speak of metals, of actual wealth,[1a] the standard of comparative value, objects for which we diligently search, within the earth, in numerous ways. In one place, for instance, we undermine it for the purpose of obtaining riches, to supply the exigencies of life, searching for either gold or silver, electrum[2] or copper.[3] In another place, to satisfy the requirements of luxury, our researches extend to gems and pigments, with which to adorn our fingers[4] and the walls of our houses: while in a third place, we gratify our rash propensities by a search for iron, which, amid wars and carnage, is deemed more acceptable even than gold. We trace out all the veins of the earth, and yet, living upon it, undermined as it is beneath our feet, are astonished that it should occasionally cleave asunder or tremble: as though, forsooth, these

[1] We now enter upon the Sixth division of Pliny's work, containing an account of mineral substances of all descriptions.—*Dr. Bostock.*

[1a] "Ipsæ opes." The metals were looked upon by the ancients as the only *true* riches. It is in this sense that Ovid says, Metam. B. i.: "Effodiuntur opes, irritamenta malorum." Pliny applies the term "pretia rerum" to metals, as forming the unit of value.

[2] Electrum is described in c. 23, as gold mixed with a certain quantity of silver. The word "electrum" is also used to signify amber, as in B. iii. c. 30.—B.

[3] "Æs;" by "æs" is here probably meant copper, as the author is speaking of what is dug out of the earth; it is more fully described in the first two Chapters of the next Book. According to the analysis of Klaproth, the *æs* of the ancients, when employed in works of art, cutting instruments, statues, vases, &c., was the "bronze" of the moderns, a mixture of copper and tin, in which the proportion of tin varied, from a little more than 2 to 1.14 per cent. according as the object was to procure a flexible or a hard substance. Agricola speaks of "æs" as synonymous with "cuprum," and Pliny will be found several times in the present Book, speaking of "æs Cyprium," meaning probably the finest kind of copper, and that without alloy.—B.

[4] Pliny has already referred to this topic in B. ii. c. 63.—B.

signs could be any other than expressions of the indignation felt by our sacred parent! We penetrate into her entrails, and seek for treasures in the abodes even of the Manes,[4*] as though each spot we tread upon were not sufficiently bounteous and fertile for us!

And yet, amid all this, we are far from making remedies the object of our researches: and how few in thus delving into the earth have in view the promotion of medicinal knowledge! For it is upon her surface, in fact, that she has presented us with these substances, equally with the cereals, bounteous and ever ready, as she is, in supplying us with all things for our benefit! It is what is concealed from our view, what is sunk far beneath her surface, objects, in fact, of no rapid formation,[5] that urge us to our ruin, that send us to the very depths of hell. As the mind ranges in vague speculation, let us only consider, proceeding through all ages, as these operations are, when will be the end of thus exhausting the earth, and to what point will avarice finally penetrate! How innocent, how happy, how truly delightful even would life be, if we were to desire nothing but what is to be found upon the face of the earth; in a word, nothing but what is provided ready to our hands!

## CHAP. 2.—GOLD.

Gold is dug out of the earth, and, in close proximity to it, chrysocolla,[6] a substance which, that it may appear all the more precious, still retains the name[7] which it has borrowed from gold.[8] It was not enough for us to have discovered one bane for the human race, but we must set a value too upon the very humours of gold.[9] While avarice, too, was on the search

[4*] Or shades below.

[5] "Illa quæ non nascuntur repente."

[6] "Chrysocolla" is fully described in Chapter 26 of this Book.—B.

[7] Meaning "gold glue," or "gold solder."

[8] There is considerable variation in the text of this passage, as found in the different editions. In that of Dalechamps, the Variorum, and those of De Laet and Sillig, the sentence concludes with the words "nomen ex auro custodiens;" while in those of Valpy, Lemaire, Poinsinet, Ajasson, and others, we find substituted for them the words, "Non natura," "Nomen natura," "Nomine natura," or "Nomen naturam."—B. The first reading is warranted by the Bamberg MS.

[9] "Auri sanies." More properly speaking, "the corrupt matter discharged by gold." See Chapter 26.

for silver, it congratulated itself upon the discovery of minium,[10] and devised a use to be made of this red earth.

Alas for the prodigal inventions of man! in how many ways have we augmented the value of things![11] In addition to the standard value of these metals, the art of painting lends its aid, and we have rendered gold and silver still more costly by the art of chasing them. Man has learned how to challenge both Nature and art to become the incitements to vice! His very cups he has delighted to engrave with libidinous subjects, and he takes pleasure in drinking from vessels of obscene form![12] But in lapse of time, the metals passed out of fashion, and men began to make no account of them; gold and silver, in fact, became too common. From this same earth we have extracted vessels of murrhine[13] and vases of crystal,[13a] objects the very fragility of which is considered to enhance their value. In fact, it has come to be looked upon as a proof of opulence, and as quite the glory of luxury, to possess that which may be irremediably destroyed in an instant. Nor was even this enough;—we now drink from out of a mass of gems,[14] and we set our goblets with smaragdi;[15] we take delight in possessing the wealth of India, as the promoter of intoxication, and gold is now nothing more than a mere accessory.[16]

[10] "Minium" is treated of in Chapter 36 of this Book.—B.

[11] "Pretia rerum." The value of the raw material.

[12] Pliny here refers both to the art of producing figures in relief on drinking vessels made of the precious metals, and also of giving them particular forms. A well-known line of Juvenal, Sat. ii. l. 95, affords a striking illustration of the depraved taste which existed in his time.—B. Lampridius also speaks of vessels of silver "defiled with representations of a most libidinous character;" and Capitolinus speaks of "phallovitroboli," glass drinking vessels shaped like a phallus.

[13] "Murrhina" or "myrrhina," are described in B. xxxvii. c. 8; they were, perhaps, onyxes or opals, though possibly the term was not strictly confined to these substances, but signified any transparent minerals, that exhibited a variety of colours. Salmasius, however, ridicules the idea of their being onyxes, and is of opinion that these vessels were made of porcelain; Exer. Plin. p. 144.—B. [13a] See B. xxxvii. c. 9.

[14] He alludes to the cups known as "chrysendeta," adorned with circlets of gold, exquisite chasings, and groups of precious stones. See Juvenal, Sat. v. l. 42.

[15] The "Smaragdus" is described in B. xxxvii. c. 13.

[16] "Et aurum jam accessio est."

CHAP. 3.—WHAT WAS THE FIRST RECOMMENDATION OF GOLD.

Would that gold could have been banished for ever from the earth, accursed by universal report,[17] as some of the most celebrated writers have expressed themselves, reviled by the reproaches of the best of men, and looked upon as discovered only for the ruin of mankind. How much more happy the age when things themselves were bartered for one another; as was the case in the times of the Trojan war, if we are to believe what Homer says. For, in this way, in my opinion, was commerce then carried on for the supply of the necessaries of life. Some, he tells us, would make their purchases by bartering ox-hides, and others by bartering iron or the spoil which they had taken from the enemy:[18] and yet he himself, already an admirer of gold, was so far aware of the relative value of things, that Glaucus, he informs us, exchanged his arms of gold, valued at one hundred oxen, for those of Diomedes, which were worth but nine.[19] Proceeding upon the same system of barter, many of the fines imposed by ancient laws, at Rome even, were levied in cattle,[20] [and not in money].

CHAP. 4.—THE ORIGIN OF GOLD RINGS.

The worst crime against mankind was committed by him who was the first to put a ring upon his fingers; and yet we are not informed, by tradition, who it was that first did so. For as to all the stories told about Prometheus, I look upon them as utterly fabulous, although I am aware that the ancients used to represent him with a ring of iron: it was their intention, however, to signify a chain thereby, and not an ornament. As to the ring of Midas,[21] which, upon the collet being turned

[17] "Sacrum famæ." This is the reading given by the Bamberg MS. in substitution for "aurum, sacra fames" and other readings of a similar nature, in which Pliny was thought by the commentators to allude to the famous lines of Virgil—

"Quid non mortalia pectora cogis,
Auri sacra fames!"

Had he alluded to the passage of Virgil, it is not probable that he would have used the expression in the plural, "celeberrimi auctores."

[18] Il. B. vii. ll. 472-5.—B. [19] Il. B. vi. l. 236.

[20] We may infer that this was the reason why the figure of an ox or other animal was impressed on the earliest Roman coins.—B.

[21] As Hardouin remarks, "This story is told by others, of Gyges, and not of Midas." He refers to Cicero, De Off. B. iii. c. 9, in confirmation of his assertion.—B. Both Gyges and Midas were noted for their wealth.

inwards, conferred invisibility upon the wearer, who is there that must not admit, perforce, that this story is even still more fabulous? It was the hand, and a sinister[22] hand, too, in every sense, that first brought gold into such high repute: not a Roman hand, however, for upon that it was the practice to wear a ring of iron only, and solely as an indication of war-like prowess.

As to the usage followed by the Roman kings, it is not easy to pronounce an opinion: the statue of Romulus in the Capitol wears no ring, nor does any other statue—not that of L. Brutus even—with the sole exception of those of Numa and Servius Tullius. I am surprised at this absence of the ring, in the case of the Tarquinii more particularly, seeing that they were originally from Greece,[22*] a country from which the use of gold rings was first introduced; though even at the present day the people of Lacedæmon are in the habit of wearing rings made of iron. Tarquinius Priscus, however, it is well known, was the first who presented his son with the golden bulla,[23] on the occasion of his slaying an enemy before he had laid aside the prætexta;[24] from which period the custom of wearing the bulla has been continued, a distinction confined to the children of those who have served in the cavalry, those of other persons simply wearing a leather thong.[25] Such being the case, I am the more surprised that the statue of this Tarquinius should be without a ring.

And yet, with reference to the very name of the ring, I find that there has been considerable uncertainty. That given to

[22] "Sinistræ." The play here upon the word "sinister" cannot be so well transferred into the English language; but it bears reference to the double meaning of the word, "on the left hand," and "unlucky," "ill-omened," or, as we say "sinister." We may remark, that rings were very generally employed by the Romans, not merely as ornaments, but as indications of office and rank.—B.

[22*] From Corinth, it was said: Damaratus of Corinth being the father of the first Tarquin. See B. xxxv. c. 5.

[23] On the subject of "Bullæ," golden balls, worn by the children of the nobles, see Dr. Smith's Dict. Antiq. p. 168.—B.

[24] As to the "Toga prætexta," see B. viii. c. 74.

[25] "Lorum." This word literally signifies a leather strap or thong, and Pliny is supposed by Hardouin to mean simply, that, in this latter case the strap was worn without the bulla, which was in other cases attached to it. Juvenal, Sat. v. l. 164, speaks of the "lorum" of the children of the poor.—B.

it originally by the Greeks is derived from the finger;[26] while our ancestors styled it "ungulus;"[27] and in later times both Greeks and Latins have given it the name of "symbolum."[28] For a great length of time, it is quite clear, not even the Roman senators wore rings of gold: for rings were given, and at the public expense, to those only who were about to proceed on an embassy to foreign nations, the reason being, I suppose, because men of highest rank among foreign nations were perceived to be thus distinguished. Nor was it the practice for any person to wear these rings, except those who for this reason had received them at the public expense; and in most instances, it was without this distinction that the Roman generals celebrated their public triumphs.[29] For whereas an Etruscan crown[30] of gold was supported from behind over the head of the victor, he himself, equally with the slave probably, who was so supporting the crown, had nothing but a ring of iron upon his finger.[31] It was in this manner that C. Marius celebrated his triumph over Jugurtha; and he never assumed[32] the golden ring, it is said, until the period of his third consulship.[33] Those, too, who had received golden rings on the occasion of an embassy, only wore them when in public, resuming the ring of iron when in their houses. It is in pursuance of this custom that even at the present day, an iron ring[34] is sent by way of present to a woman when betrothed, and that, too, without any stone in it.

For my own part, I do not find that any rings were used in the days of the Trojan War; at all events, Homer nowhere

[26] Δακτύλιον, from δάκτυλος, a "finger."

[27] Festus says that this was the Oscan name for a ring. It would appear to be allied to the word "unguis," which means a nail of the finger or toe, and would perhaps signify a "nail ornament."

[28] As meaning a seal or signet, for which purpose, as we shall find explained in the sequel, the ring was used.

[29] This seems to be the meaning of "Vulgoque sic triumphabant."

[30] As to these crowns, see B. xxi. c. 4.

[31] As to some other particulars connected with this usage, see the end of B. xxviii. c. 7.

[32] And yet, as Hardouin remarks, before his time, when Scipio was besieging Carthage, the bodies of the Roman tribunes, when selected for burial by Hasdrubal, were distinguished by their rings of gold. The object of Marius, no doubt, was to ingratiate himself with the upper classes.

[33] A.U.C. 651.

[34] Known as the "anulus pronubus," or "engaged ring," according to Dalechamps.

makes mention of them; for although he speaks of the practice of sending tablets[35] by way of letter,[36] of clothes and gold and silver plate being kept laid up in chests,[37] still he gives us to understand that they were kept secure by the aid of a knot tied fast, and not under a seal impressed by a ring. He does not inform us too, that when the chiefs drew lots to ascertain which one of them should reply to the challenge[38] of the enemy, they made any use of rings[39] for the purpose; and when he enumerates the articles that were manufactured at the forge[40] of the gods, he speaks of this as being the origin[41] of fibulæ[42] and other articles of female ornament, such as ear-rings for example, but does not make any mention of rings.

[43] Whoever it was that first introduced the use of rings, he did so not without hesitation; for he placed this ornament on the left hand, the hand which is generally concealed,[44] whereas, if he had been sure of its being an honourable distinction, it would have been made more conspicuous upon the right. And if any one should raise the objection that this would have acted as an impediment to the right hand, I can only say that the usage in more recent times fortifies my opinion, and that the inconvenience of wearing rings on the left hand would have been still greater, seeing that it is with the left hand that the

[35] "Codicillos." Il. B. vi. l. 168.

[36] See B. xiii. c. 21.

[37] Od. B. viii. ll. 424, 443, 447.

[38] See the Iliad. B. iii. and B. vii. l. 175, *et seq.*

[39] His meaning is, that although κληροὶ were used, lots or balls made of earth, we do not read that the impressions on them were made by the aid of signet-rings.

[40] "Fabricæ deûm." He alludes to the forge of Vulcan, described in the Eighteenth Book of the Iliad, l. 400, *et seq.*

[41] This seems to be the meaning of "In primordio factitâsse."

[42] The "fibulæ" were the brooches of the ancients, consisting of a pin, and of a curved portion furnished with a hook. See Dr. Smith's Dict. Antiq. p. 417.

[43] As the meaning of this passage has been the subject of much discussion with commentators, we give it in full, as found in the Edition of Sillig. "Et quisquis primus instituit, cunctanter id fecit, lævis manibus latentibusque induit, cum, si honos securus fuisset, dextrâ fuerit ostentandus. Quodsi impedimentum potuit in eo aliquod intelligi, etiam serior is usus argumentum est, et majus in lævâ fuisset, quâ scutum capitur." Sillig is of opinion that Pliny is here alluding to the reason given by Ateius Capito (quoted in Macrobius, Saturn. B. vii. c. 13), for wearing the ring on the left hand. It was so worn, he says, from an apprehension that the precious stone with which it was set, might receive injury from the continual use made of the right hand.

[44] Under the folds of the toga.

shield is held. We find mention made too, in Homer,[45] of men wearing gold plaited with the hair; and hence it is that I am at a loss to say whether the practice first originated with females.

CHAP. 5.—THE QUANTITY OF GOLD POSSESSED BY THE ANCIENTS.

At Rome, for a long period of time, the quantity of gold was but very small. At all events, after the capture of the City by the Gauls, when peace was about to be purchased, not more than one thousand pounds' weight of gold could be collected. I am by no means unaware of the fact that in the third[46] consulship of Pompeius there was lost from the throne of Jupiter Capitolinus two thousand pounds' weight of gold, originally placed there by Camillus; a circumstance which has led most persons to suppose, that two thousand pounds' weight was the quantity then collected. But in reality, this excess of one thousand pounds was contributed from the spoil taken from the Gauls, amplified as it was by the gold of which they had stripped the temples, in that part of the City which they had captured.

The story of Torquatus,[47] too, is a proof that the Gauls were in the habit of wearing ornaments of gold when engaged in combat;[48] from which it would appear that the sum taken from the Gauls themselves, and the amount of which they had pillaged the temples, were only equal to the amount of gold collected for the ransom, and no more; and this is what was really meant by the response given by the augurs, that Jupiter Capitolinus had rendered again the ransom twofold.[49] As we

[45] Il. B. xvii. l. 52.

[46] The reading in most MSS. is the "fourth consulship." This, however, is an error which has been rectified by the Bamberg and some other MSS. Pompey was but *thrice* consul. M. Crassus was the person generally accused of the act of robbery here alluded to.

[47] Who took the golden torc (torques) from the Gaul whom he slew; whence his name.

[48] "Cum auro pugnare solitos."

[49] "Quod equidem in augurio intellectum est, cum Capitolinus duplum reddidisset." The meaning of this passage is obscure, and cannot with certainty be ascertained. Holland renders it, "To the light and knowledge whereof we come by means of revelation from Augurie, which gave us to understand, that Jupiter Capitolinus had rendered again the foresaid summe in duple proportion." Littré gives a similar translation. Ajasson translates it, "This, at least, is what we may presume, from the fact of there being discovered double the amount expected;" following the explanation given by Hardouin.

were just now speaking on the subject of rings, it may be as well to add, by way of passing remark, that upon the officer[50] in charge of the Temple of Jupiter Capitolinus being arrested, he broke the stone of his ring between his teeth,[51] and expired upon the spot, thus putting an end to all possibility of discovering the perpetrator of the theft.

It appears, therefore, that in the year of the City 364, when Rome was captured by the Gauls, there was but two thousand pounds' weight of gold, at the very most; and this, too, at a period when, according to the returns of the census, there were already one hundred and fifty-two thousand five hundred and seventy-three free citizens in it. In this same city, too, three hundred and seven years later, the gold which C. Marius the younger[52] conveyed to Prænestе from the Temple of the Capitol when in flames, and all the other shrines, amounted to thirteen thousand pounds' weight, such being the sum that figured in the inscriptions at the triumph of Sylla; on which occasion it was displayed in the procession, as well as six thousand pounds' weight of silver. The same Sylla had, the day before, displayed in his triumph fifteen thousand pounds' weight of gold, and one hundred and fifteen thousand pounds' weight of silver, the fruit of all his other victories.

### CHAP. 6.—THE RIGHT OF WEARING GOLD RINGS.

It does not appear that rings were in common use before the time of Cneius Flavius, the son of Annius. This Flavius was the first to publish a table[53] of the days for pleading,[54] which till then the populace had to ascertain each day from a few

[50] The "ædituus," or "temple keeper." See B. xxxvi. 4.

[51] Beneath which there was poison concealed, Hardouin says. Hannibal killed himself in a similar manner; also Demosthenes, as mentioned in the next Chapter.

[52] The adopted son of the great Marius. This event happened in his consulship, B.C. 82. After his defeat by Sylla at Sacriportus, he retired into the fortified town of Prænestе, where he had deposited the treasures of the Capitoline temple. The temple, after this conflagration, was rebuilt by order of Sylla.

[53] Called the "Fasti;" probably because this was the first word of the title.

[54] "Dies fasti." These were the days on which the courts sat, and the Prætor, who was the chief judge, gave his decisions. The word "fasti" is derived from the ancient Latin "for,' or from the old Greek word φαω, both signifying "to speak:" consequently the "dies fasti" were "the speaking days," and the "dies nefasti" the "non-speaking days," in allusion to the restrictions put upon the judgments of the Prætor.

great personages.[56] The son of a freedman only, and secretary to Appius Cæcus,[57] (at whose request, by dint of natural shrewdness and continual observation, he had selected these days and made them public),[58] he obtained such high favour with the people, that he was created curule ædile; in conjunction with Quintus Anicius Prænestinus, who a few years before had been an enemy to Rome,[59] and to the exclusion of C. Pœtilius and Domitius, whose fathers respectively were of consular rank.[60] The additional honour was also conferred on Flavius, of making him tribune of the people at the same time, a thing which occasioned such a degree of indignation, that, as we find stated in the more ancient Annals, "the rings[61] were laid aside!"

Most persons, however, are mistaken in the supposition that on this occasion the members of the equestrian order did the same: for it is in consequence of these additional words, "the phaleræ,[62] too, were laid aside as well," that the name of the equestrian order was added. These rings, too, as the Annals tell us, were laid aside by the nobility, and not[63] by the whole body of the senate. This event took place in the consulship of P. Sempronius and P. Sulpicius.[64] Flavius made a vow that he would consecrate a temple to Concord, if he should succeed in reconciling the privileged orders with the plebeians: and as no part of the public funds could be voted for the purpose, he accordingly built a small shrine of brass[65] in the Græ-

[56] This complex state of the Roman Calendar long remained one of the sources from which the priesthood and the patrician order derived their power and influence over the plebeians. Having no other method of ascertaining what days were "fasti," and what were "nefasti," the lower classes were obliged either to apply to the priests and nobles for information, or to await the proclamation by the priests of the various festivals about to take place.

[57] Appius Claudius Cæcus, the Censor and jurisconsult, who constructed the Appian Way.

[58] A.U.C. 440, or B.C. 314.

[59] In the war, probably, with the twelve nations of Etruria, who were conquered by the Consul Fabius A.U.C. 444. See Livy, B. ix.

[60] The father of the former C. Pœtilius Libo, was Consul A.U.C. 428: the father of the latter, Cneius Domitius Calvinus, was Consul A.U.C. 432.

[61] "Anulos abjectos."

[62] The "phaleræ" were bosses of metal, often gold, attached to the harness of the horse. See B. vii. c. 29.

[63] He would probably imply hereby that, as he states subsequently, at this period gold rings were not as yet worn by *all* the members of the senate.

[64] A.U.C. 449.

[65] "Ædiculam æream"—of brass or bronze.

costasis,[66] then situate above the Comitium,[67] with the fines which had been exacted for usury. Here, too, he had an inscription engraved upon a tablet of brass, to the effect that the shrine was dedicated two hundred and three years after the consecration of the Capitol. Such were the events that happened four hundred and forty-nine years after the foundation of the City, this being the earliest period at which we find any traces of the common use of rings.

A second occasion, however, that of the Second Punic War, shows that rings must have been at that period in very general use; for if such had not been the case, it would have been impossible for Hannibal to send the three[68] modii of rings, which we find so much spoken of, to Carthage. It was through a dispute, too, at an auction about the possession of a ring, that the feud first commenced between Cæpio[69] and Drusus,[70] a dispute which gave rise to the Social War,[71] and the public disasters which thence ensued. Not even in those days, however, did all the senators possess gold rings, seeing that, in the memory of our grandsires, many personages who had even filled the prætorship, wore rings of iron to the end of their lives; Calpurnius,[72] for example, as Fenestella tells us, and Manilius, who had been legatus to Caius Marius in the Jugurthine War. Many historians also state the same of L. Fufidius, he to whom Scaurus dedicated the history of his life.

In the family of the Quintii,[73] it is the usage for no one, not the females even, ever to wear a ring; and even at the present day, the greater part of the nations known to us, peoples who are living under the Roman sway, are not in the habit of

[66] For the explanation of this term, see B. vii. c. 60.

[67] See B. x. c. 2. Livy tells us that this shrine or temple was built in the area or place of Vulcan.

[68] Livy, B. xxiii. speaks of *one* modius as being the real quantity. Florus, B. ii. c. 16, says *two* modii: but Saint Augustin, De Civit. Dei. B. iii. c. 19, and most other writers, mention *three* modii.

[69] Q. Servilius Cæpio. He and M. Livius Drusus had been most intimate friends, and each had married the other's sister. The assassination of Drusus was supposed by some to have been committed at the instigation of Cæpio. The latter lost his life in an ambush, B.C. 90.

[70] See B. xxviii. c. 41.

[71] See B. ii. c. 85.

[72] M. Calpurnius Flamma. See B. xxii. c. 6.

[73] A patrician family; branches of which were the Cincinnati, the Capitolini, the Crispini, and the Flaminini.

wearing rings. Neither in the countries of the East,[74] nor in Egypt, is any use made of seals, the people being content with simple writing only.[75]

In this, as in every other case, luxury has introduced various fashions, either by adding to rings gems of exquisite brilliancy, and so loading the fingers with whole revenues, as we shall have further occasion to mention in our Book on Gems;[76] or else by engraving them with various devices: so that it is in one instance the workmanship, in another the material, that constitutes the real value of the ring. Then again, in the case of other gems, luxury has deemed it no less than sacrilege to make a mark[77] even upon them, and has caused them to be set whole, that no one may suppose that the ring was ever intended to be employed as a signet. In other instances, luxury has willed that certain stones, on the side even that is concealed by the finger, should not[78] be closed in with gold, thus making gold of less account than thousands of tiny pebbles. On the other hand again, many persons will admit of no gems being set in their rings, but impress their seal with the gold[79] itself, an invention which dates from the reign of Claudius Cæsar. At the present day, too, the very slaves even, incase their iron rings with gold (while other articles belonging to them, they decorate with pure gold),[80] a licence which first originated in the Isle of Samothrace,[81] as the name given to the invention clearly shows.

[74] This is an erroneous assertion, both as to the East, and as to Egypt. See instances to the contrary in Genesis, c. xli. v. 42; and in Esther, c. iii. verses 10, 12, and c. viii. verses 2, 8, 10.

[75] "Literis contenta solis."

[76] The Thirty-seventh Book. See also his remarks in B. ii. c. 63: "We tear out earth's entrails in order to extract the gems with which we may load our fingers. How many hands are worn down that one little joint may be ornamented!" Martial, Epigr. B. v. Ep. 11, speaks of his friend Stella as wearing on the joint of one finger sardonyxes, emeralds, and jaspers.

[77] "Violari." See B. xxxvii. c. 1.

[78] A fashion much followed at the present day.

[79] This also is a not uncommon fashion at the present day.

[80] From the "Trinummus" of Plautus, A. iv. s. 4, we learn that the ring worn by slaves was called "condalium." From the "Truculentus" of Plautus we learn also that these rings were sometimes made of bronze. The "jus anuli," or right of wearing a gold ring, was never conceded to slaves.

[81] See B. iv. c. 23. In the Origines of Isidorus Hispalensis, B. xix. c. 32, we find mention made of "A Samothracian gold ring, with an iron bezil, so called from the place of its invention." Pliny has already made

It was the custom at first to wear rings on a single finger[82] only, the one, namely, that is next to the little finger; and this we see the case in the statues of Numa and Servius Tullius In later times, it became the practice to put rings on the finger next to the thumb, even in the case of the statues of the gods; and more recently, again, it has been the fashion to wear them upon the little finger[83] as well. Among the peoples of Gallia and Britannia, the middle finger, it is said, is used for this purpose. At the present day, however, among us, this is the only finger that is excepted, all the others being loaded with rings, smaller rings even being separately adapted for the smaller joints of the fingers. Some there are who heap several rings upon the little finger alone; while others, again, wear but one ring upon this finger, the ring that sets a seal upon the signet-ring itself, this last being kept carefully shut up as an object of rarity, too precious to be worn in common use, and only to be taken from the cabinet[84] as from a sanctuary. And thus is the wearing of a single ring upon the little finger no more than an ostentatious advertisement that the owner has property of a more precious nature under seal at home!

Some, too, make a parade of the weight of their rings, while to others it is quite a labour[85] to wear more than one at a time: some, in their solicitude for the safety of their gems, make the hoop of gold tinsel, and fill it with a lighter material than gold, thinking thereby to diminish the risks of a fall.[86] Others, again, are in the habit of inclosing poisons beneath the stones of their rings, and so wear them as instruments of death; Demosthenes, for instance, that greatest of the orators of Greece.[87] And then, besides, how many of the crimes that are stimulated by cupidity, are committed through the instrumentality of

allusion to the luxurious habits of the slaves, in B. xiii. c. 4; and B. xviii. c. 2; a subject upon which Juvenal enlarges in his Third Satire.

[82] The reasons are mentioned by Ateius Capito, as quoted by Macrobius, Saturnal. B. vii. c. 13: also by Apion the Grammarian, as quoted by Aulus Gellius, B. x. c. 10.

[83] The ring of each finger had its own appropriate name.

[84] The "dactyliotheca," or "ring-box."

[85] Juvenal, Sat. i. l. 26, *et. seq.*, speaks of the summer rings of the Roman fops, and their fingers sweating beneath the weight.

[86] Martial, Epigr. B. xiv., speaks of the numerous accidents to which a weighty ring was liable.

[87] Hannibal, too, for instance, as mentioned in Note 51 to the preceding Chapter.

rings![88] How happy the times, how truly innocent, in which no seal was ever put to anything! At the present day, on the contrary, our very food even and our drink have to be preserved from theft[89] through the agency of the ring: a result owing to those legions of slaves, those throngs of foreigners which are introduced into our houses, multitudes so numerous that we require the services of a nomenclator[90] even, to tell us the names of our own servants. Very different was it in the times of our forefathers, when each person possessed a single servant only, one of his master's own lineage, called Marcipor or Lucipor,[91] from his master's name, as the case might be, and taking all his meals with him in common; when, too, there was no occasion for taking precautions at home by keeping a watch upon the domestics. But at the present day, we not only procure dainties which are sure to be pilfered, but hands to pilfer them as well; and so far is it from being sufficient to have the very keys sealed, that the signet-ring is often taken from off the owner's finger while he is overpowered with sleep or lying on his death-bed.[92]

Indeed the most important transactions of life are now made to depend upon this instrument, though at what period this first began to be the case, I am at a loss to say. It would appear, however, so far as foreign nations are concerned, that we may admit the importance attached to it, from the days of Polycrates,[93] the tyrant of Samos, whose favourite ring, after being

[88] He alludes, probably, to forgeries perpetrated through the agency of false signets.

[89] Plautus, Cicero, Horace, and Martial, each in his own age, bears testimony to the truth of this statement.

[90] Or remembrancer; a slave whose duty it was to remind his master of the name of each member of his household; see B. xxix. c. 8. Athenæus, B. vi., speaks of as many as twenty thousand slaves belonging to one household. Demetrius, the freedman of Pompey, mentioned in B. xxxv. c. 58, had a retinue of slaves equal to an army in amount.

[91] Meaning "Marci puer," or "Luci puer"—"Marcius' boy," or "Lucius' boy."

[92] Suetonius says, c. 73, that Tiberius, in his last illness, awoke after a long lethargy, and demanded his signet-ring, which his son-in-law, Caligula, had removed from his finger, under the supposition that he was dead. Macro, to avoid any unpleasant results in the way of punishment, caused the emperor to be smothered with the pillows and bedclothes.

[93] This famous and somewhat improbable story of the ring of Polycrates is told by Valerius Maximus, B. vi. c. 9; Herodotus, B. iii.; and Cicero, De Finibus, B. iv. Pliny again mentions it in B. xxxvii. cc. 2, 4.

thrown in the sea, was recovered from a fish that was caught; and this Polycrates, we know, was put to death[94] about the year of our City, 230. The use of the ring must, of necessity, have become greatly extended with the increase of usury; one proof of which is, the usage still prevalent among the lower classes, of whipping off the ring[95] the moment a simple contract is made; a practice which takes its date, no doubt, from a period when there was no more expeditious method of giving an earnest on closing a bargain. We may therefore very safely conclude, that though money was first introduced among us, the use of rings was introduced very shortly after. Of money, I shall shortly have occasion to speak further.[96]

### CHAP. 7.—THE DECURIES OF THE JUDGES.

Rings, as soon as they began to be commonly worn, distinguished the second order from the plebeians, in the same manner as the use of the tunic[97] distinguished the senate from those who only wore the ring. Still, however, this last distinction was introduced at a later period only, and we find it stated by writers that the public heralds[98] even were formerly in the habit of wearing the tunic with the purple laticlave; the father of Lucius Ælius Stilo,[99] for instance, from whom his son received the cognomen of "Præconinus," in consequence of his father's occupation as a herald. But the use of rings, no doubt, was the distinguishing mark of a third and intermediate order, between the plebeians and the senators; and the title of "eques," originally derived from the possession of a war-horse,[1] is given at the present day as an indication of a certain amount of income. This, however, is of comparatively recent introduction; for when the late Emperor Augustus made his regulations for the decuries,[2] the greater part of the members thereof were persons who wore iron rings, and these bore the name, not of "equites," but of "judices,"

[94] He was crucified by Oroetes, the Persian satrap of Sardis.
[95] "Anulo exsiliente." [96] In Chapter 13 of this Book.
[97] The laticlave tunic. See B. viii. c. 73, and B. ix. c. 63.
[98] "Præcones." [99] See the list of writers at the end of B. ix.
[1] "Equus militaris."
[2] See B. xxix. c. 8. The "Decuriæ" of "judices," or "judges," were so called, probably, from ten (decem) having been originally chosen from each tribe. As to the Decuriæ of the judices, see Smith's Dict. Antiq. pp. 531—2. The account given by Pliny is confused in the extreme.

the former name being reserved solely for the members of the squadrons[3] furnished with war-horses at the public charge.

Of these judices, too, there were at first but four[4] decuries only, and in each of these decuries there was hardly one thousand men to be found, the provinces not having been hitherto admitted to the office; an observance which is still in force at the present day, no one newly admitted to the rights of citizenship being allowed to perform the duties of judex as a member of the decuries.

(2.) These decuries, too, were themselves distinguished by several denominations—"tribunes[5] of the treasury," "selecti,"[6] and "judices:" in addition to whom, there were the persons styled the "nine hundred,"[7] chosen from all the decuries for the purpose of keeping the voting-boxes at the comitia. From the ambitious adoption, however, of some one of these names, great divisions ensued in this order, one person styling himself a member of the nine hundred, another one of the selecti, and a third a tribune of the treasury.

CHAP. 8.—PARTICULARS CONNECTED WITH THE EQUESTRIAN ORDER.

At length, however, in the ninth[8] year of the reign of the Emperor Tiberius, the equestrian order was united in a single body; and a decree was passed, establishing to whom belonged the right of wearing the ring, in the consulship of C. Asinius Pollio and C. Antistius Vetus, the year from the foundation of the City, 775. It is a matter for surprise, how almost futile, we may say, was the cause which led to this change. C. Sulpicius Galba,[9] desirous in his youth to establish his credit with the Emperor by hunting[10] out grounds for prosecuting[11] the keepers

[3] "Turmæ." Squadrons of thirty "equites" or horsemen; ten of which squadrons were attached to each legion.

[4] Before the time of Augustus, there were but *three* decuries.

[5] A law introduced by Aurelius Cotta, B.C. 70, enacted that the Judices should be chosen from the three classes—of Senators, Equites, and Tribuni ærarii, or Tribunes of the treasury, these last being taken from the body of the people, and being persons possessed of some property.

[6] Members selected by lot. [7] "Nongenti."

[8] Tacitus says that this took place the year before, in the consulship of C. Sulpicius, and D. Haterius. See the Annales, B. iii. c. 86.

[9] Brother of the Emperor Galba. [10] "Aucupatus."

[11] Suetonius says that Tiberius instructed the ædiles to prohibit stews and eating-houses: from which we may conclude, Hardouin says, that C. Sulpicius Galba was an ædile.

of victualling-houses, made complaint in the senate that the proprietors of those places were in the habit of protecting themselves from the consequences of their guilt by their plea of wearing the golden ring.[12] For this reason, an ordinance was made that no person whatsoever should have this right of wearing the ring, unless, freeborn himself as regarded his father and paternal grandfather, he should be assessed by the censors at four hundred thousand sesterces, and entitled, under the Julian Law,[13] to sit in the fourteen tiers of seats at the theatre. In later times, however, people began to apply in whole crowds for this mark of rank; and in consequence of the diversities of opinion which were occasioned thereby, the Emperor Caius[14] added a fifth decury to the number. Indeed to such a pitch has conceit now arisen, that whereas, under the late Emperor Augustus, the decuries could not be completed, at the present day they will not suffice to receive all the members of the equestrian order, and we see in every quarter persons even who have been but just liberated from slavery, making a leap all at once to the distinction of the golden ring: a thing that never used to happen in former days, as it was by the ring of iron that the equites and the judices were then to be recognized.

Indeed, so promiscuously was this privilege at last conferred, that Flavius Proculus, one of the equites, informed against four hundred persons on this ground, before the Emperor Claudius, who was then censor:[15] and thus we see, an order, which was established as a mark of distinction from other private individuals of free birth, has been shared in common with slaves!

The Gracchi were the first to attach to this order the separate appellation of "judices," their object being at the same moment a seditious popularity and the humiliation of the senate. After the fall of these men, in consequence of the varying results of seditious movements, the name and influence of the equestrian order were lost, and became merged in those of the publicani,[16]

[12] Or, in other words, belonging to the equestrian order. The Roman equites often followed the pursuits of bankers, and farmers of the public revenues.

[13] A law passed in the time of Julius Cæsar, B.C. 69, which permitted Roman equites, in case they or their parents had ever had a Census equestris, to sit in the fourteen rows fixed by the Lex Roscia Theatralis.

[14] Caligula. [15] Conjointly with L. Vitellius.

[16] Or farmers of the public revenues; the "publicans" of Scripture.

who, for some time, were the men that constituted the third class in the state. At last, however, Marcus Cicero, during his consulship, and at the period of the Catilinarian troubles, re-established the equestrian name, it being his vaunt that he himself had sprung from that order, and he, by certain acts of popularity peculiar to himself, having conciliated its support. Since that period, it is very clear that the equites have formed the third body in the state, and the name of the equestrian order has been added to the formula—"The Senate and People of Rome." Hence[17] it is, too, that at the present day even, the name of this order is written after that of the people, it being the one that was the last instituted.

### CHAP. 9.—HOW OFTEN THE NAME OF THE EQUESTRIAN ORDER HAS BEEN CHANGED.

Indeed, the name itself of the equites even, has been frequently changed, and that too, in the case of those who only owed their name to the fact of their service on horseback. Under Romulus and the other kings, the equites were known as "Celeres,"[18] then again as "Flexuntes,"[19] and after that as "Trossuli,"[20] from the fact of their having taken a certain town of Etruria, situate nine miles on this side of Volsinii, without any assistance from the infantry; a name too which survived till after the death of C. Gracchus.

In reality, they were mostly members of the equestrian order, and the words "equites" and "publicani" are often used as synonymous.

[17] "This passage seems to be the addition of some ignorant copyist. It is indeed a remarkable fact, that we have *no* inscription in which we see the Equites named *after* the people as well as the Senate."—Laboulaye, *Essai sur les lois Criminelles des Romains*: Paris, 1845, p. 224.

[18] According to Livy, B. i. c. 15, the Celeres were three hundred Roman knights whom Romulus established as a body-guard. Their name, probably, was derived from the Greek κέλης, a "war-horse," or "charger," and the body consisted no doubt, of the patricians in general, or such of them as could keep horses. Another origin assigned to the appellation is "Celer," the name of a chieftain, who was a favourite of Romulus. The adjective "celer," "swift," owes its origin, probably, to the title of these horsemen.

[19] A title derived, possibly, as Delafosse suggests, "a flectendis habenis," from "managing the reins."

[20] Called "Trossum" or "Trossulum," it is supposed. The remains of a town are still to be seen at Trosso, two miles from Monteflascone in Tuscany. The Greek word τρωξαλλίς, a "cricket," and the Latin "torosulus," "muscular," have been suggested as the origin of this name. Ajasson suggests the Latin verb "truso," to "push on," as its origin.

At all events, in the writings left by Junius, who, from his affection for C. Gracchus, took the name of Gracchanus,[21] we find the following words—"As regards the equestrian order, its members were formerly called 'Trossuli,' but at the present day they have the name of 'Equites;' because it is not understood what the appellation 'Trossuli' really means, and many feel ashamed at being called by that name."[22]—He[23] then goes on to explain the reason, as above mentioned, and adds that, though much against their will, those persons are still called "Trossuli."

CHAP. 10.—GIFTS FOR MILITARY SERVICES, IN GOLD AND SILVER.

There are also some other distinctions connected with gold, the mention of which ought not to be omitted. Our ancestors, for instance, presented torcs[24] of gold to the auxiliaries and foreign troops, while to Roman citizens they only granted silver[25] ones: bracelets[26] too, were given by them to citizens, but never to foreigners.

CHAP. 11.—AT WHAT PERIOD THE FIRST CROWN OF GOLD WAS PRESENTED.

But, a thing that is more surprising still, crowns[27] of gold were given to the citizens as well. As to the person who was first presented with one, so far as I have enquired, I have not been able to ascertain his name: L. Piso says, however, that the Dictator[28] A. Posthumius was the first who conferred one: on taking the camp of the Latins at Lake Regillus,[29] he gave a crown of gold, made from the spoil, to the soldier whose valour had mainly contributed to this success. L. Lentulus,

[21] See the end of this Book.

[22] From the ambiguous nature of the name, it being in later times an expression of contempt, like our word "fop," or "beau." In this latter sense, Salmasius derives it from the Greek τρυσσός, "effeminate."

[23] This concluding passage is omitted in most editions.

[24] See B. vii. c. 29.

[25] Dionysius of Halicarnassus is therefore probably wrong in his assertion that torcs of *gold* were given to Siccius Dentatus, a Roman citizen, as the reward of valour.

[26] See B. vii. c. 29.

[27] On this subject, see B. xvi. c. 3, and B. xxi. c. i.

[28] A.U.C. 323, or 431 B.C.

[29] Situate about fourteen miles from Rome, and on the road to the town called La Colonna.

also, when consul,[30] presented one to Servius Cornelius Merenda, on taking a town of the Samnites; but in his case it was five pounds in weight. Piso Frugi, too, presented his son with a golden crown, at his own private expense, making[31] it a specific legacy in his will.

CHAP. 12. (3.)—OTHER USES MADE OF GOLD, BY FEMALES.

To honour the gods at their sacrifices, no greater mark of honour has been thought of than to gild the horns of the animals sacrificed—that is, of the larger victims[32] only. But in warfare, this species of luxury made such rapid advances, that in the Epistles of M. Brutus from the Plains of Philippi, we find expressions of indignation at the fibulæ[33] of gold that were worn by the tribunes. Yes, so it is, by Hercules! and yet you, the same Brutus, have not said a word about women wearing gold upon their feet; while we, on the other hand, charge him with criminality[34] who was the first to confer dignity upon gold by wearing the ring. Let men even, at the present day, wear gold upon the arms in form of bracelets—known as "dardania," because the practice first originated in Dardania, and called "viriolæ" in the language of the Celts, "viriæ"[35] in that of Celtiberia, let women wear gold upon their arms[36] and all their fingers, their necks, their ears, the tresses of their hair; let chains of gold run meandering along their sides; and in the still hours of the night let sachets filled with pearls hang suspended from the necks of their mistresses, all bedizened with gold, so that in their very sleep even they may still retain the consciousness that they are the possessors of such

[30] A.U.C. 479, and B.C. 275. In the following year Merenda himself was consul, with Manius Curius Dentatus.

[31] "Testamento prælegavit." Properly speaking, "prælegare" was "to bequeath a thing to be given before the inheritance was divided." The crown thus left by Piso was to be three pounds in weight.

[32] Oxen, namely. The smaller victims had the head encircled with chaplets.

[33] The clasps by which the "sagum" or military cloak was fastened on the shoulders.

[34] See the beginning of Chapter 4 of the present Book.

[35] Isidorus Hispalensis, Orig. B. xix. c. 30, says that bracelets were formerly so called from the circumstance of being conferred on warriors as the reward of bravery—"ob virtutem." Scævola, Ulpian, and others speak of "viriolæ" as ornaments worn by females.

[36] See B. xxxvii. c. 6.

gems: but are they to cover their feet[37] as well with gold, and so, between the stola[38] of the matrons and the garb of the plebeians, establish an intermediate[39] or equestrian[40] order of females? Much more becomingly do we accord this distinction to our pages,[41] and the adorned beauty of these youths has quite changed the features of our public baths.

At the present day, too, a fashion has been introduced among the men even, of wearing effigies upon their fingers representing Harpocrates[42] and other divinities of Egypt. In the reign of Claudius, also, there was introduced another unusual distinction, in the case of those to whom was granted the right of free admission,[43] that, namely, of wearing the likeness of the emperor engraved in gold upon a ring: a circumstance that gave rise to vast numbers of informations, until the timely elevation of the Emperor Vespasianus rendered them impossible, by proclaiming that the right of admission to the emperor belonged equally to all. Let these particulars suffice on the subject of golden rings and the use of them.

CHAP. 13.—COINS OF GOLD. AT WHAT PERIODS COPPER, GOLD, AND SILVER WERE FIRST IMPRESSED. HOW COPPER WAS USED BEFORE GOLD AND SILVER WERE COINED. WHAT WAS THE LARGEST SUM OF MONEY POSSESSED BY ANY ONE AT THE TIME OF OUR FIRST CENSUS. HOW OFTEN, AND AT WHAT PERIODS,

[37] In allusion to the use of gold as an ornament for the shoes and sandal-ties.

[38] A dress worn over the tunic, and which came as low as the ankles or feet. The stola was the characteristic dress of the Roman matrons of rank; other females being restricted to the use of the toga, which did not reach so low.

[39] Between the matrons of rank whose feet were not to be seen at all, and the plebeian females, whose feet *were* seen, but comparatively unadorned.

[40] In the same way that the gold ring was the distinguishing mark of the Equites, so would the gold ankle-jewels be the characteristic of this new order of females. In the use of the word "Equestrem," Ajasson absolutely detects an indelicate allusion, and rallies our author on thus retaining "the aroma of the camp!"

[41] "Pædagogiis." The origin of our word "page." The pages of the Romans were decorated with gold ankle-jewels and other ornaments for the legs.

[42] Or Horus, the god of silence. Ajasson is of opinion that this impression on the seal was symbolical of the secrecy which ought to be preserved as to written communications.

[43] To the Emperor's presence.

THE VALUE OF COPPER AND OF COINED MONEY HAS BEEN CHANGED.

The next[44] crime committed against the welfare of mankind was on the part of him who was the first to coin a denarius[45] of gold, a crime the author of which is equally unknown. The Roman people made no use of impressed silver even before the period of the defeat[46] of King Pyrrhus. The "as" of copper weighed exactly one libra; and hence it is that we still use the terms "libella"[47] and "dupondius."[48] Hence it is, too, that fines and penalties are inflicted under the name of "æs grave,"[49] and that the words still used in keeping accounts are "expensa,"[50] "impendia,"[51] and "dependere."[52] Hence, too, the word "stipendium," meaning the pay of the soldiers, which is nothing more than "stipis pondera;"[53] and from the same source those other words, "dispensatores"[54] and "libripendes."[55] It is also from this circumstance that in sales of slaves, at the present day even, the formality of using the balance is introduced.

King Servius was the first to make an impress upon copper. Before his time, according to Timæus, at Rome the raw metal only was used. The form of a sheep was the first figure impressed upon money, and to this fact it owes its name, "pecunia."[56] The highest figure at which one man's property was assessed in the reign of that king was one hundred and

[44] The *first* crime having been committed by him who introduced the use of gold rings. See the beginning of c. 4 of this Book.

[45] The golden denarius was known also as the "aureus" or "gold coin." It was worth 25 silver denarii. As to the modern value of the money used by the ancients, see the Introduction to Vol. III. The golden denarius is mentioned also in B. xxxiv. c. 17, and in B. xxxvii. c. 3.

[46] A.U.C. 479.

[47] Meaning, literally, the "little pound," in reference to the diminished weight of the "as."

[48] Meaning "two pounds," or in other words, "two asses." See B. xxxiv. c. 2. As to the weight of the "libra," or pound, see the Introduction to Vol. III.

[49] "Brasse bullion, or in masse."—*Holland.*

[50] "Money weighed out," *i. e.* "expenses."

[51] "Money weighed out for the payment of interest."

[52] "To weigh out money for payment," *i.e.* "to pay."

[53] "A weight of money."

[54] "Weighers-out;" meaning "keepers of accounts," or "paymasters."

[55] "Weighers-out" of the soldiers' wages; *i. e.* "paymasters."

[56] From "pecus," a sheep. See B. xviii. c. 3.

twenty thousand asses, and consequently that amount of property was considered the standard of the first class.

Silver was not impressed with a mark until the year of the City 485, the year of the consulship of Q. Ogulnius and C. Fabius, five years before the First Punic War; at which time it was ordained that the value of the denarius should be ten libræ[57] of copper, that of the quinarius five libræ, and that of the sestertius two libræ and a half. The weight, however, of the libra of copper was diminished during the First Punic War, the republic not having means to meet its expenditure: in consequence of which, an ordinance was made that the as should in future be struck of two ounces weight. By this contrivance a saving of five-sixths was effected, and the public debt was liquidated. The impression upon these copper coins was a two-faced Janus on one side, and the beak of a ship of war on the other: the triens,[58] however, and the quadrans,[59] bore the impression of a ship. The quadrans, too, had, previously to this, been called "teruncius," as being three unciæ[60] in weight. At a later period again, when Hannibal was pressing hard upon Rome, in the dictatorship of Q. Fabius Maximus, asses of one ounce weight were struck, and it was ordained that the value of the denarius should be sixteen asses, that of the quinarius eight asses, and that of the sestertius four asses; by which last reduction of the weight of the as the republic made a clear gain of one half. Still, however, so far as the pay of the soldiers is concerned, one denarius has always been given for every ten asses. The impressions upon the coins of silver were two-horse and four-horse chariots, and hence it is that they received the names of "bigati" and "quadrigati."

Shortly after, in accordance with the Law of Papirius, asses were coined weighing half an ounce only. Livius Drusus, when[61] tribune of the people, alloyed the silver with one-eighth part of copper. The coin that is known at the present day as the "victoriatus,"[62] was first struck in accordance with the

[57] "Pounds" or "asses."

[58] The third of an "as."

[59] The fourth of an "as."

[60] Or ounces; being one-fourth of the "as," of one "libra" in weight. See Introduction to Vol. III.

[61] A.U.C. 663.

[62] The same as the quinarius, one-half of the denarius. In B. xv. c. 100, it is mentioned as a weight. See also the Introduction to Vol. III.

Clodian Law: before which period, a coin of this name was imported from Illyricum, but was only looked upon as an article of merchandize. The impression upon it is a figure of Victory, and hence its name.

The first golden coin was struck sixty-two years after that of silver, the scruple of gold being valued at twenty sesterces; a computation which gave, according to the value of the sesterce then in use, nine hundred sesterces to each libra of gold.[63] In later times, again, an ordinance was made, that denarii of gold should be struck, at the rate of forty denarii[64] to each libra of gold; after which period, the emperors gradually curtailed the weight of the golden denarius, until at last, in the reign of Nero, it was coined at the rate of forty-five to the libra.

### CHAP. 14.—CONSIDERATIONS ON MAN'S CUPIDITY FOR GOLD.

But the invention of money opened a new field to human avarice, by giving rise to usury and the practice of lending money at interest, while the owner passes a life of idleness: and it was with no slow advances that, not mere avarice only, but a perfect hunger[65] for gold became inflamed with a sort of rage for acquiring: to such a degree, in fact, that Septimuleius, the familiar friend of Caius Gracchus, not only cut off his head, upon which a price had been set of its weight in gold,

[63] As, originally, there were 288 "scripula," or scruples, to the "libra" or pound, this would appear to give 5760 sestertii to the pound of gold, and not 900 merely. Though this apparent discrepancy has generally puzzled the commentators, the solution, as suggested by M. Parisot, in the Notes to Ajasson's Translation, appears equally simple and satisfactory. He suggests that in the "as," or "libra," *of two ounces*, there were 288 scruples. Now, the scruple remaining the same, when the as or libra was reduced to one ounce, it would contain but 144 of these scruples. Then, on making the as the sixteenth part of a denarius instead of the tenth, it would lose three-eighths of its value in scruples, or in other words, 54 scruples, thus making it worth but 90 scruples. Then again, as above stated, by the Papirian Law, the weight or value of the libra or as was reduced one-half, making its value in scruples only 45; or, in other words, five thirty-seconds of its original value, when worth two unciæ or ounces. This number of scruples to the libra would give, at the rate of twenty sesterces to the scruple of gold, exactly 900 sesterces to the libra of gold.

[64] Or "aurei."

[65] "Fames auri." Similar to the words of Virgil, "Auri sacra fames." "The curst greed for gold." See Note 17 to Chapter 3 of this Book.

but, before[66] bringing it to Opimius,[67] poured molten lead into the mouth, and so not only was guilty of the crime of parricide, but added to his criminality by cheating the state. Nor was it now any individual citizen, but the universal Roman name, that had been rendered infamous by avarice, when King Mithridates caused molten gold to be poured into the mouth of Aquilius[68] the Roman general, whom he had taken prisoner: such were the results of cupidity.

One cannot but feel ashamed, on looking at those new-fangled names which are invented every now and then, from the Greek language, by which to designate vessels of silver filagreed[69] or inlaid with gold, and the various other practices by which such articles of luxury, when only gilded,[70] are made to sell at a higher price than they would have done if made of solid gold: and this, too, when we know that Spartacus[71] forbade any one of his followers to introduce either gold or silver into the camp—so much more nobleness of mind was there in those days, even in our runaway slaves.

The orator Messala has informed us that Antonius the triumvir made use of golden vessels when satisfying the most humiliating wants of nature, a piece of criminality that would have reflected disgrace upon Cleopatra even! Till then, the most consummate instances of a similar licentiousness had been found among strangers only—that of King Philip, namely, who was in the habit of sleeping with a golden goblet placed beneath his pillows, and that of Hagnon of Teos, a commander under Alexander the Great, who used to fasten the soles of his sandals with nails of gold.[72] It was reserved for Antonius to be the only one thus to impart a certain utility to gold, by putting an

[66] Another version of this story was, that he extracted the brain, and inserted lead in its place.

[67] See B. xiv. c. 16.

[68] In B.C. 88, M. Aquilius proceeded to Asia Minor as one of the consular legati to prosecute the war against Mithridates. On being defeated near Protomachium, he was delivered up to Mithridates by the inhabitants of Mytilene, and after being treated in the most barbarous manner, was put to death by pouring molten gold down his throat.

[69] "Insperso." Sillig is of opinion that Pliny is here speaking of the work now known by Italian artists as *tausia* or *lavoro all' agemina*.

[70] Hardouin thinks that Pliny is here making allusion to the Greek word "chrysendeta," vessels "encircled with gold." It is frequently used in Martial's works.

[71] See B. xv. c. 38.

[72] It is against such practices as these that Martial inveighs, B. i. Ep. 28, and B. ix. Ep. 12.

insult upon Nature. Oh how righteously would he himself have been proscribed! but then the proscription should have been made by Spartacus.[73]

### CHAP. 15.—THE PERSONS WHO HAVE POSSESSED THE GREATEST QUANTITY OF GOLD AND SILVER.

For my own part, I am much surprised that the Roman people has always imposed upon conquered nations a tribute in silver, and not in gold; Carthage, for instance, from which, upon its conquest under Hannibal, a ransom was exacted in the shape of a yearly[74] payment, for fifty years, of eight hundred thousand pounds' weight of silver, but no gold. And yet it does not appear that this could have arisen from there being so little gold then in use throughout the world. Midas and Crœsus, before this, had possessed gold to an endless amount: Cyrus, already, on his conquest of Asia,[75] had found a booty consisting of twenty-four thousand pounds' weight of gold, in addition to vessels and other articles of wrought gold, as well as leaves[76] of trees, a plane-tree, and a vine, all made of that metal.

It was through this conquest too, that he carried off five hundred thousand[77] talents of silver, as well as the vase of Semiramis,[78] the weight of which alone amounted to fifteen talents, the Egyptian talent being equal, according to Varro, to eighty of our pounds. Before this time too, Saulaces, the descendant of Æëtes, had reigned in Colchis,[79] who, on finding

[73] A slave only; and not by any of his brother patricians. Antony was rendered infamous by his proscriptions.

[74] Appian and Livy mention the fine as consisting of ten thousand talents *in all*, or in other words, eight hundred thousand pounds of silver (at eighty pounds to the talent). Sillig is therefore of opinion that Pliny is in error here in inserting the word "annua." The payment of the ten thousand talents, we learn from the same authorities, was spread over fifty years.

[75] Asia Minor.

[76] "Folia." Hardouin prefers the reading "solia," meaning "thrones," or "chairs of state," probably.

[77] Ajasson refuses to place credit in this statement.

[78] This vase of Semiramis was her drinking bowl, in much the same sense that the great cannon at Dover was Queen Elizabeth's "pocket pistol."

[79] The country to which, in previous times, the Argonauts had sailed in quest of the Golden Fleece, or in other words in search of gold in which those regions were probably very prolific.

a tract of virgin earth, in the country of the Suani,[80] extracted from it a large amount of gold and silver, it is said, and whose kingdom besides, had been famed for the possession of the Golden Fleece. The golden arches, too, of his palace, we find spoken of, the silver supports and columns, and pilasters, all of which he had come into possession of on the conquest of Sesostris,[81] king of Egypt; a monarch so haughty, that every year, it is said, it was his practice to select one of his vassal kings by lot, and yoking him to his car, celebrate his triumph afresh.

CHAP. 16.—AT WHAT PERIOD SILVER FIRST MADE ITS APPEARANCE UPON THE ARENA AND UPON THE STAGE.

We, too, have done things that posterity may probably look upon as fabulous. Cæsar, who was afterwards dictator, but at that time ædile, was the first person, on the occasion of the funeral games in honour of his father, to employ all the apparatus of the arena[82] in silver; and it was on the same occasion that for the first time criminals encountered wild beasts with implements of silver, a practice imitated at the present day in our municipal towns even.

At the games celebrated by C. Antonius the stage was made of[83] silver; and the same was the case at those celebrated by L. Muræna. The Emperor Caius had a scaffold[84] introduced into the Circus, upon which there were one hundred and twenty-four thousand pounds' weight of silver. His successor Claudius, on the occasion of his triumph over Britain, announced by the inscriptions that among the coronets of gold, there was one weighing seven thousand[85] pounds' weight, contributed by Nearer Spain, and another of nine thousand pounds,

[80] See B. vi. c. 4.

[81] This story of the defeat of the great Ramses-Sesostris by a petty king of Colchis, would almost appear apocryphal. It is not improbable, however, that Sesostris, when on his Thracian expedition, may have received a repulse on penetrating further north, accustomed as his troops must have been, to a warmer climate.

[82] Of the amphitheatre.

[83] Covered, probably, with plates of silver.

[84] "Pegma." A scaffold with storeys, which were raised or depressed, to all appearance, spontaneously. Caligula is the emperor meant.

[85] Another reading is "seven" pounds in weight, and "nine" pounds; which would appear to be more probable than seven *thousand*, and nine *thousand*, as given by the Bamberg MS. It is just possible, however, that the latter may have been the united weights of *all* the coronets contributed by Spain and Gaul respectively, the word "inter" being an interpolation.

presented by Gallia Comata.[86] Nero, who succeeded him, covered the Theatre of Pompeius with gold for one day,[87] the occasion on which he displayed it to Tiridates, king of Armenia. And yet how small was this theatre in comparison with that Golden Palace[88] of his, with which he environed our city.

CHAP. 17.—AT WHAT PERIODS THERE WAS THE GREATEST QUANTITY OF GOLD AND SILVER IN THE TREASURY OF THE ROMAN PEOPLE.

In the consulship of Sextus Julius and Lucius Aurelius,[89] seven years before the commencement of the Third Punic War, there was in the treasury of the Roman people seventeen thousand four hundred and ten pounds' weight of uncoined gold, twenty-two thousand and seventy pounds' weight of silver, and in specie, six million one hundred and thirty-five thousand four hundred sesterces.

In the consulship of Sextus Julius and Lucius Marcius, that is to say, at the commencement of the Social War,[90] there was in the public treasury one million[91] six hundred and twenty thousand eight hundred and thirty-one pounds' weight of gold. Caius Cæsar, at his first entry into Rome, during the civil war which bears his name, withdrew from the treasury fifteen thousand pounds' weight in gold ingots, thirty thousand pounds' weight in uncoined silver, and in specie, three hundred thousand sesterces: indeed, at no[92] period was the republic more wealthy. Æmilius Paulus, too, after the defeat of King Perseus, paid into the public treasury, from the spoil obtained in Macedonia, three hundred millions[92*] of sesterces, and from this period the Roman people ceased to pay tribute.

CHAP. 18.—AT WHAT PERIOD CEILINGS WERE FIRST GILDED.

The ceilings which, at the present day, in private houses even, we see covered with gold, were first gilded in the Capi-

[86] See B. iv. c. 31, B. xi. c. 47, and B. xviii. c. 20.

[87] Hence known as the "Golden Day," according to Dion Cassius, B. lxiii.

[88] For further particulars as to the Golden Palace, see B. xxxvi. c. 24.

[89] A.U.C. 597. [90] Or Marsic War. See B. ii. c. 85.

[91] There is an error in this statement, probably, unless we understand by it the small libra or pound of two ounces, mentioned in c. 13 of this Book.

[92] This remark is confirmatory of the incorrectness of the preceding statement. [92*] The reading here is doubtful.

tol, after the destruction of Carthage, and during the censorship of Lucius Mummius.[93] From the ceilings this luxuriousness has been since transferred to the arched roofs of buildings, and the party-walls even, which at the present day are gilded like so many articles of plate: very different from the times when Catulus[94] was far from being unanimously approved of for having gilded the brazen tiles of the Capitol!

### CHAP. 19.—FOR WHAT REASONS THE HIGHEST VALUE IS SET UPON GOLD.

We have already stated, in the Seventh[95] Book, who were the first discoverers of gold, as well as nearly all the other metals. The highest rank has been accorded to this substance, not, in my opinion, for its colour, (which in silver is clearer[96] and more like the light of day, for which reason silver is preferred for our military ensigns, its brightness being seen at a greater distance); and those persons are manifestly in error who think that it is the resemblance of its colour to the stars[97] that is so prized in gold, seeing that the various gems[98] and other things of the same tint, are in no such particular request. Nor yet is it for its weight or malleability[99] that gold has been preferred to other metals, it being inferior in both these respects to lead—but it is because gold is the only[1] substance in nature that suffers[2] no loss from the action of fire, and passes unscathed through conflagrations and the flames of the funeral pile. Nay, even more than this, the oftener gold is subjected to the action of fire, the more refined in quality it becomes; indeed, fire is one test of its goodness, as, when sub-

[93] A.U.C. 612.
[94] See B. xix. c. 6.
[95] Chapter 57.
[96] In fact, no colour at all.
[97] In *this* climate, the light of most of the stars has the complexion, not of gold, but of silver.
[98] The topaz, for instance.
[99] For ductility and malleability, both which terms may perhaps be included in the "facilitas" of Pliny, gold is unrivalled among the metals. As to weight, it is heavier than lead, the specific gravity of gold being 19.258, and that of lead 11 352. Pliny is therefore wrong in both of these assertions.

[1] He forgets asbestus here, a substance which he has mentioned in B. xix. c. 4.

[2] Chlorine, however, and nitro-muriatic acid corrode and dissolve gold, forming a chloride of gold, which is soluble in water. Ajasson remarks, that gold becomes volatilized by the heat of a burning-glass of three or four feet in diameter; and that when it acts as the conductor of a strong current of electricity, it becomes reduced to dust instantaneously, presenting a bright greenish light.

mitted to intense heat, gold ought to assume a similar colour, and turn red and igneous in appearance; a mode of testing which is known as "obrussa."[3]

The first great proof, however, of the goodness of gold, is its melting with the greatest difficulty: in addition to which, it is a fact truly marvellous, that though proof against the most intense fire, if made with wood charcoal, it will melt with the greatest readiness upon a fire made with chaff;[4] and that, for the purpose of purifying it, it is fused with lead.[5] There is another reason too, which still more tends to enhance its value, the fact that it wears the least of all metals by continual use: whereas with silver, copper, and lead, lines may be traced,[6] and the hands become soiled with the substance that comes from off them. Nor is there any material more malleable than this, none that admits of a more extended division, seeing that a single ounce of it admits of being beaten out into seven hundred and fifty[7] leaves, or more, four fingers in length by the same in breadth. The thickest kind of gold-leaf is known as "leaf of Prænestе," it still retaining that name from the excellence of the gilding upon the statue of Fortune[8] there. The next in thickness is known as the "quæstorian leaf." In Spain, small pieces of gold are known by the name of "striges."[9]

A thing that is not the case with any other metal, gold is found pure in masses[10] or in the form of dust;[11] and whereas

[3] The gold thus tested was called "obrussum," "obryzum," or "obrizum," from the Greek ὄβρυζον, meaning "pure gold."

[4] See B. xviii. c. 23, where he calls the chaff used for this purpose by the name of "acus."

[5] The present mode of assaying the precious metals, is by fusing them upon a cupel with lead.

[6] For which purpose, lead was used, no doubt, in drawing the lines in the MSS. of the ancients. See Beckmann's Hist. Inv. Vol. II. p. 389. *Bohn's Ed.*

[7] This is far surpassed at the present day, its malleability being such that it may be beaten *into* leaves not more than one two hundred and eighty thousandth of an inch in thickness, and its ductility admitting of one grain being drawn out into five hundred feet of wire. For further particulars as to the gold leaf of the ancients, and the art of gilding, as practised by them, see Beckmann's Hist. Inv. Vol. II. p. 391, *et seq. Bohn's Edition.*

[8] See B. xxxvi. c. 64.

[9] He alludes to what are now known as *pepitæ*, oval grains of river-gold. "Striges" is the reading in the Bamberg MS., "strigiles" in the former editions.

[10] "Massa." As we should say at the present day, "nuggets."

[11] "Ramentum."

all other metals, when found in the ore, require to be brought to perfection by the aid of fire, this gold that I am speaking of is gold the moment it is found, and has all its component parts already in a state of perfection. This, however, is only such gold as is found in the native state, the other kinds that we shall have to speak of, being refined by art. And then, more than anything else, gold is subject to no rust, no verdigris,[12] no emanation whatever from it, either to alter its quality or to lessen its weight. In addition to this, gold steadily resists the corrosive action of salt and vinegar,[13] things which obtain the mastery over all other substances: it admits, too, beyond all other metals, of being spun out and woven[14] like wool.[15] Verrius tells us that Tarquinius Priscus celebrated a triumph, clad in a tunic of gold; and I myself have seen Agrippina, the wife of the Emperor Claudius, on the occasion of a naval combat which he exhibited, seated by him, attired in a military scarf[16] made entirely of woven gold without any other material. For this long time past, gold has been interwoven in the Attalic[17] textures, an invention of the kings of Asia.

### CHAP. 20.—THE METHOD OF GILDING.

On marble and other substances which do not admit of being brought to a white heat, gilt is laid with glair of egg, and on wood by the aid of a glutinous composition,[18] known as "leucophoron:" what this last is, and how it is prepared, we shall

[12] The contrary is now known to be the case; gold is sometimes, though rarely, found in an oxidized state.

[13] As to the solvents of gold, see Note 2 above. Stahl says that three parts of sub-carbonate of potash, dissolved in water, and heated with three parts of sulphur and one part of gold, will yield a complete solution of the metal.

[14] Aldrovandus relates, in his "Museum Metallicum," that the grave of the Emperor Honorius was discovered at Rome about the year 1544, and that thirty-six pounds' weight of gold were procured from the mouldering dress that covered the body. See, on the subject of gold threads, Beckmann's Hist. Inv. Vol. I. p. 415. *Bohn's Edition.*

[15] The "cloth of gold" of the present day, is made of threads of silk or hair, wound round with silver wire flattened and gilded.

[16] "Paludamento."

[17] See B. viii. c. 74. Beckmann is of opinion, from a passage of Silius Italicus, B. xiv. l. 661, that the cloth of Attalus was embroidered with the needle. See this subject fully discussed in his Hist. Inv. Vol. I. p. 415. See also Dr. Yates's "Textrinum Antiquorum," pp. 371, 464.

[18] "Without entering into any research respecting the minerals em-

state on the appropriate occasion.[19] The most convenient method for gilding copper would be to employ quicksilver, or, at all events, hydrargyros;[20] but with reference to these substances, as we shall have occasion to say when describing the nature[21] of them, methods of adulteration have been devised. To effect this mode of gilding, the copper is first well hammered, after which it is subjected to the action of fire, and then cooled with a mixture of salt, vinegar, and alum.[22] It is then cleansed of all extraneous substances, it being known by its brightness when it has been sufficiently purified. This done, it is again heated by fire, in order to enable it, when thus prepared, with the aid of an amalgam of pumice, alum, and quicksilver, to receive the gold leaf when applied. Alum has the same property of purifying copper, that we have already[23] mentioned as belonging to lead with reference to gold.

### CHAP. 21. (4.)—HOW GOLD IS FOUND.

Gold is found in our own part of the world; not to mention the gold extracted from the earth in India by the ants,[24] and in Scythia by the Griffins.[25] Among us it is procured in three different ways; the first of which is, in the shape of dust, found in running streams, the Tagus[26] in Spain, for instance, the Padus in Italy, the Hebrus in Thracia, the Pactolus in Asia, and the Ganges in India; indeed, there is no gold found in a more perfect state than this, thoroughly polished as it is by the continual attrition of the current.

A second mode of obtaining gold is by sinking shafts or seeking it among the debris of mountains; both of which methods it will be as well to describe. The persons in search of gold in the first place remove the "segutilum,"[27] such being the

ployed for this cement, called 'leucophoron,' one may readily conceive that it must have been a ferruginous ochre, or kind of bole, which is still used as a ground. Gilding of this kind must have suffered from dampness, though many specimens of it are still preserved."—Beckmann's Hist. Inv. Vol. II. p. 294. *Bohn's Edition.*

[19] B. xxxv. c. 17.

[20] Literally, "fluid silver." "The first name here seems to signify native quicksilver, and the second that separated from the ore by an artificial process." Beckmann's Hist. Inv. Vol. II. p. 72.

[21] In Chapters 32 and 41 of this Book.

[22] As to the identity of the "alumen" of Pliny, see B. xxxv. c. 52.

[23] In the preceding Chapter.

[24] See B. xi. c. 36.

[25] See B. vii. c. 2.

[26] See B. iv. c. 17.

[27] Ajasson remarks, that the Castilians still call the surface earth of au-

name of the earth which gives indication of the presence of gold. This done, a bed is made, the sand of which is washed, and, according to the residue found after washing, a conjecture is formed as to the richness of the vein. Sometimes, indeed, gold is found at once in the surface earth, a success, however, but rarely experienced. Recently, for instance, in the reign of Nero, a vein was discovered in Dalmatia, which yielded daily as much as fifty pounds' weight of gold. The gold that is thus found in the surface crust is known as "talutium,"[28] in cases where there is auriferous earth beneath. The mountains of Spain,[29] in other respects arid and sterile, and productive of nothing whatever, are thus constrained by man to be fertile, in supplying him with this precious commodity.

The gold that is extracted from shafts is known by some persons as "canalicium," and by others as "canaliense;"[30] it is found adhering to the gritty crust of marble,[31] and, altogether different from the form in which it sparkles in the sapphirus[32] of the East, and in the stone of Thebais[33] and other gems, it is seen interlaced with the molecules of the marble. The channels of these veins are found running in various directions along the sides of the shafts, and hence the name of the gold they yield—"canalicium."[34] In these shafts, too, the superincumbent earth is kept from falling in by means of wooden pillars. The substance that is extracted is first broken up, and then washed; after which it is subjected to the action of fire, and ground to a fine powder. This powder is known as "apitascudes," while the silver which becomes disengaged in the[35] furnace has the name of "sudor"[36] given to it. The im-

riferous deposits by the name of *segullo*. He also doubts the correctness of Pliny's assertion as to the produce of the mines of Dalmatia.

[28] See B. xxxiv. c. 47.

[29] We learn from Ajasson that numerous pits or shafts are still to be seen in Spain, from which the Romans extracted gold. At Riotento, he says, there are several of them.

[30] Both meaning "channel gold."

[31] "Marmoris glareæ." Under this name, he no doubt means quartz and schist.

[32] See B. xxxvii. c. 39.

[33] See B. xxxvi. c. 13.

[34] "Channel-gold" or "trench-gold."

[35] Becoming volatilized, and attaching itself in crystals to the side of the chimney.

[36] Or "sweat." This "sweat" or "silver" would in reality be a general name for all the minerals that were volatilized by the heat of the furnace; while under the name of "scoria" would be comprised pyrites, quartz, petrosilex, and other similar substances.

purities that escape by the chimney, as in the case of all other metals, are known by the name of "scoria." In the case of gold, this scoria is broken up a second time, and melted over again. The crucibles used for this purpose are made of "tasconium,"[37] a white earth similar to potter's clay in appearance; there being no other substance capable of withstanding the strong current of air, the action of the fire, and the intense heat of the melted metal.

The third method of obtaining gold surpasses the labours of the Giants[38] even: by the aid of galleries driven to a long distance, mountains are excavated by the light of torches, the duration of which forms the set times for work, the workmen never seeing the light of day for many months together. These mines are known as "arrugiæ;"[39] and not unfrequently clefts are formed on a sudden, the earth sinks in, and the workmen are crushed beneath; so that it would really appear less rash to go in search of pearls and purples at the bottom of the sea, so much more dangerous to ourselves have we made the earth than the water! Hence it is, that in this kind of mining, arches are left at frequent intervals for the purpose of supporting the weight of the mountain above. In mining either by shaft or by gallery, barriers of silex are met with, which have to be driven asunder by the aid of fire and vinegar;[40] or more frequently, as this method fills the galleries with suffocating vapours and smoke, to be broken to pieces with bruising-machines shod with pieces of iron weighing one hundred and fifty pounds: which done, the fragments are carried out on the workmen's shoulders, night and day, each man passing them on to his neighbour in the dark, it being only those at the pit's mouth that ever see the light. In cases where the bed of silex appears too thick to admit of being penetrated, the miner traces along the sides of it, and so turns it. And yet, after all, the labour entailed by this silex is looked upon as comparatively easy, there being an earth—a kind of potter's clay mixed with gravel, "gangadia" by name, which it is almost impossible to overcome. This earth has to be attacked with iron wedges and hammers

[37] The cupel or crucible is still known in Spain by the name of *tasco*.

[38] Who were said to have heaped one mountain on another in their war with the gods.

[39] Deep mines in Spain are still called *arrugia*, a term also used to signify gold beneath the surface. According to Grimm, *arruzi* was the ancient High German name for iron.

[40] See B. xxiii. c. 27.

like those previously mentioned,[41] and it is generally considered that there is nothing more stubborn in existence—except indeed the greed for gold, which is the most stubborn of all things.

When these operations are all completed, beginning at the last, they cut away[42] the wooden pillars at the point where they support the roof: the coming downfall gives warning, which is instantly perceived by the sentinel, and by him only, who is set to watch upon a peak of the same mountain. By voice as well as by signals, he orders the workmen to be immediately summoned from their labours, and at the same moment takes to flight himself. The mountain, rent to pieces, is cleft asunder, hurling its debris to a distance with a crash which it is impossible for the human imagination to conceive; and from the midst of a cloud of dust, of a density quite incredible, the victorious miners gaze upon this downfall of Nature. Nor yet even then are they sure of gold, nor indeed were they by any means certain that there was any to be found when they first began to excavate, it being quite sufficient, as an inducement to undergo such perils and to incur such vast expense, to entertain the hope that they shall obtain what they so eagerly desire.

Another labour, too, quite equal to this, and one which entails even greater expense, is that of bringing rivers[43] from the more elevated mountain heights, a distance in many instances of one hundred miles perhaps, for the purpose of washing these debris. The channels thus formed are called "corrugi," from our word "corrivatio,"[44] I suppose; and even when these are once made, they entail a thousand fresh labours. The fall, for instance, must be steep, that the water may be precipitated, so to say, rather than flow; and it is in this manner that it is brought from the most elevated points. Then, too, vallies and crevasses have to be united by the aid of aqueducts, and in another place impassable rocks have to be hewn away, and forced to make room for hollowed troughs of wood; the person hewing them hanging suspended all the time with ropes, so that to a spectator who views the operations

[41] The breaking-machines, used for crushing the silex.

[42] "Cædunt" is certainly a preferable reading to "cadunt," though the latter is given by the Bamberg MS.

[43] A similar method of washing auriferous earth or sand in the mines, is still employed in some cases.

[44] "The bringing of water into one channel."

from a distance, the workmen have all the appearance, not so much of wild beasts, as of birds upon the wing.[45] Hanging thus suspended in most instances, they take the levels, and trace with lines the course the water is to take; and thus, where there is no room even for man to plant a footstep, are rivers traced out by the hand of man. The water, too, is considered in an unfit state for washing, if the current of the river carries any mud along with it. The kind of earth that yields this mud is known as "urium;"[46] and hence it is that in tracing out these channels, they carry the water over beds of silex or pebbles, and carefully avoid this urium. When they have reached the head of the fall, at the very brow of the mountain, reservoirs are hollowed out, a couple of hundred feet in length and breadth, and some ten feet in depth. In these reservoirs there are generally five sluices left, about three feet square; so that, the moment the reservoir is filled, the floodgates are struck away, and the torrent bursts forth with such a degree of violence as to roll onwards any fragments of rock which may obstruct its passage.

When they have reached the level ground, too, there is still another labour that awaits them. Trenches—known as "agogæ"[47]—have to be dug for the passage of the water; and these, at regular intervals, have a layer of ulex placed at the bottom. This ulex[48] is a plant like rosemary in appearance, rough and prickly, and well-adapted for arresting any pieces of gold that may be carried along. The sides, too, are closed in with planks, and are supported by arches when carried over steep and precipitous spots. The earth, carried onwards in the stream, arrives at the sea at last, and thus is the shattered mountain washed away; causes which have greatly tended to extend the shores of Spain by these encroachments upon the deep. It is also by the agency of canals of this description that the material, excavated at the cost of such immense labour by the process previously described,[49] is washed and car-

[45] Or as Holland quaintly renders it, "Some flying spirit or winged devill of the air."

[46] Magnesian carbonate of lime, or dolomite, Ajasson thinks.

[47] From the Greek, ἀγωγή.

[48] It does not appear to have been identified; and it can hardly be the same as the Ulex Europæus of modern Natural History, our Furze or Gorse.

[49] That of sinking shafts, described already in this Chapter.

ried away; for otherwise the shafts would soon be choked up by it.

The gold found by excavating with galleries does not require to be melted, but is pure gold at once. In these excavations, too, it is found in lumps, as also in the shafts which are sunk, sometimes exceeding ten pounds even. The names given to these lumps are "palagæ," and "palacurnæ,"[50] while the gold found in small grains is known as "baluce." The ulex that is used for the above purpose is dried and burnt, after which the ashes of it are washed upon a bed of grassy turf, in order that the gold may be deposited thereupon.

Asturia, Gallæcia, and Lusitania furnish in this manner, yearly, according to some authorities, twenty thousand pounds' weight of gold, the produce of Asturia forming the major part. Indeed, there is no part of the world that for centuries has maintained such a continuous fertility in gold. I have already[51] mentioned that by an ancient decree of the senate, the soil of Italy has been protected from these researches; otherwise, there would be no land more fertile in metals. There is extant also a censorial law relative to the gold mines of Victumulæ, in the territory of Vercellæ,[52] by which the farmers of the revenue were forbidden to employ more than five thousand men at the works.

### CHAP. 22.—ORPIMENT.

There is also one other method of procuring gold; by making it from orpiment,[53] a mineral dug from the surface of the earth in Syria, and much used by painters. It is just the colour of gold, but brittle, like mirror-stone,[54] in fact. This substance greatly excited the hopes of the Emperor Caius,[55] a prince who was most greedy for gold. He accordingly had a large quantity of it melted, and really did obtain some excellent gold;[56] but then the proportion was so extremely small, that he found himself a loser thereby. Such was the result of an experiment prompted solely by avarice: and this too, although the price

[50] All these names, no doubt, are of Spanish origin, although Salmasius would assign them a Greek one.

[51] In B. iii. c. 24. [52] See B. iii. c. 21.

[53] "Auripigmentum." Yellow sulphuret of arsenic. See B. xxxiv. c. 56.

[54] "Lapis specularis." See B. xxxvi. c. 45. [55] Caligula.

[56] It was accidently mixed with the ore of arsenic, no doubt, unless, indeed, the emperor was imposed upon.

of the orpiment itself was no more than four denarii per pound. Since his time, the experiment has never been repeated.

### CHAP. 23.—ELECTRUM.

In all[57] gold ore there is some silver, in varying proportions; a tenth part in some instances, an eighth in others. In one mine, and that only, the one known as the mine of Albucrara, in Gallæcia,[58] the proportion of silver is but one thirty-sixth: hence it is that the ore of this mine is so much more valuable than that of others. Whenever the proportion of silver is one-fifth, the ore is known also by the name of "electrum;"[59] grains, too, of this metal are often found in the gold known as "canalicense."[60] An artificial[61] electrum, too, is made, by mixing silver with gold. If the proportion of silver exceeds one-fifth, the metal offers no resistance on the anvil.

Electrum, too, was highly esteemed in ancient times, as we learn from the testimony of Homer, who represents[62] the palace of Menelaüs as refulgent with gold and electrum, silver and ivory. At Lindos, in the island of Rhodes, there is a temple dedicated to Minerva, in which there is a goblet of electrum, consecrated by Helena: history states also that it was moulded after the proportions of her bosom. One peculiar advantage of electrum is, its superior brilliancy to silver by lamp-light. Native electrum has also the property of detecting poisons; for in such case, semicircles, resembling the rainbow in appearance, will form upon the surface of the goblet, and emit a crackling noise, like that of flame, thus giving a twofold indication of the presence of poison.[63]

### CHAP. 24.—THE FIRST STATUES OF GOLD.

The first statue of massive gold, without any hollowness within, and anterior to any of those statues of bronze even, which are known as "holosphyratæ,"[64] is said to have been

[57] This is almost, but not quite, universally the case.

[58] In Spain. See B. iii. c. 4, B. iv. c. 34, and B. ix. c. 2. The locality alluded to is now unknown.

[59] A name also given by the ancients to amber. Artificial "electrum," or gold alloyed with silver, was known in the most ancient times.

[60] The gold found by sinking shafts. See Chapter 21.

[61] See B. ix. c. 65.

[62] Od. B. iv. l. 71.

[63] Pliny no doubt has been imposed upon in this instance.

[64] "Solid hammer-work," in opposition to works in metal, cast and hollow within.

erected in the Temple of the goddess Anaïtis. To what particular region this name belongs, we have already[65] stated, it being that of a divinity[66] held in the highest veneration by the nations in that part of the world. This statue was carried off during the wars of Antonius with the people of Parthia; and a witty saying is told, with reference to it, of one of the veterans of the Roman army, a native of Bononia. Entertaining on one occasion the late Emperor Augustus at dinner, he was asked by that prince whether he was aware that the person who was the first to commit this violence upon the statue, had been struck with blindness and paralysis, and then expired. To this he made answer, that at that very moment Augustus was making his dinner off of one of her legs, for that he himself was the very man, and to that bit of plunder he had been indebted for all his fortune.[67]

As regards statues of human beings, Gorgias of Leontini[68] was the first to erect a solid statue of gold, in the Temple at Delphi, in honour of himself, about the seventieth[69] Olympiad: so great were the fortunes then made by teaching the art of oratory!

### CHAP. 25.—EIGHT REMEDIES DERIVED FROM GOLD.

Gold is efficacious as a remedy in many ways, being applied to wounded persons and to infants, to render any malpractices of sorcery comparatively innocuous that may be directed against them. Gold, however, itself is mischievous in its effects if

[65] In B. v. c. 20, most probably. See also B. xvi. c. 64.

[66] The worship of Anaitis was probably a branch of the Indian worship of Nature. The Greek writers sometimes identify this goddess with their Artemis and their Aphrodite.

[67] Holland has strangely mistaken the meaning of the veteran's reply; "Yea, sir, that it is; and that methinks you should know best, for even now a leg of his you have at supper, and all *your* wealth besides is come unto *you* by that saccage." He then adds, by way of Note, "For Augustus Cæsar defeited Antonie, and was mightily enriched by the spoile of him."

[68] In Sicily. According to Valerius Maximus and other writers, a statue of solid gold was erected by the whole of Greece, in the temple at Delphi, in honour of Gorgias, who was distinguished for his eloquence and literary attainments. The leading opinion of Gorgias was, that nothing had any real existence.

[69] The ninetieth Olympiad, about the year 420 B.C., is much more probably the correct reading; as it was about the seventieth Olympiad, or somewhat later, that Gorgias was born.

carried over the head, in the case of chickens and lambs more particularly. The proper remedy in such case is to wash the gold, and to sprinkle the water upon the objects which it is wished to preserve. Gold, too, is melted with twice its weight of salt, and three times its weight of misy;[70] after which it is again melted with two parts of salt and one of the stone called "schistos."[71] Employed in this manner, it withdraws the natural acridity from the substances torrefied with it in the crucible, while at the same time it remains pure and incorrupt; the residue forming an ash which is preserved in an earthen vessel, and is applied with water for the cure of lichens on the face: the best method of washing it off is with bean-meal. These ashes have the property also of curing fistulas and the discharges known as "hæmorrhoides:" with the addition, too, of powdered pumice, they are a cure for putrid ulcers and sores which emit an offensive smell.

Gold, boiled in honey with melanthium[72] and applied as a liniment to the navel, acts as a gentle purgative upon the bowels. M. Varro assures us that gold is a cure for warts.[73]

## CHAP. 26. (5.)—CHRYSOCOLLA.

Chrysocolla[74] is a liquid which is found in the shafts already mentioned,[75] flowing through the veins of gold; a kind of slime which becomes indurated by the cold of winter till it has attained the hardness even of pumice. The most esteemed kind of it, it has been ascertained, is found in copper-mines, the next best being the produce of silver-mines: it is found also in lead-mines, but that found in combination with gold ore is much inferior.

In all these mines, too, an artificial chrysocolla is manu-

[70] See B. xxxiv. c. 29.

[71] See B. xxix. c. 38. and B. xxxvi. cc. 37, 38.

[72] Or gith. See B. xx. c. 71.

[73] Similar to the notion still prevalent, that the application of pure gold will remove styes on the eyelids.

[74] It has been supposed by some, that the "Chrysocolla" of the ancients, as well as the "Cæruleum," mentioned in c. 57 of this Book, were the produce of cobalt; but the more generally received opinion is that "chrysocolla" (gold-solder) was green verditer, or mountain-green, carbonate and hydrocarbonate of copper, green and blue, substances which are sometimes found in gold mines, but in copper mines more particularly. It must not be confounded with the modern chrysocolla or Borax.

[75] In Chapter 21 of this Book.

factured; much inferior, however, to the native chrysocolla. The method of preparing it consists in introducing water gradually into a vein of metal, throughout the winter and until the month of June; after which, it is left to dry up during the months of June and July; so that, in fact, it is quite evident that chrysocolla is nothing else but the putrefaction of a metallic vein. Native chrysocolla, known as "uva," differs from the other in its hardness more particularly; and yet, hard as it is, it admits of being coloured with the plant known as "lutum."[76] Like flax and wool, it is of a nature which imbibes liquids. For the purpose of dyeing it, it is first bruised in a mortar, after which, it is passed through a fine sieve. This done, it is ground, and then passed through a still finer sieve; all that refuses to pass being replaced in the mortar, and subjected once more to the mill. The finest part of the powder is from time to time measured out into a crucible, where it is macerated in vinegar, so that all the hard particles may be dissolved; after which, it is pounded again, and then rinsed in shell-shaped vessels, and left to dry. This done, the chrysocolla is dyed by the agency of schist alum[77] and the plant above-mentioned; and thus is it painted itself before it serves to paint. It is of considerable importance, too, that it should be absorbent and readily take the dye: indeed, if it does not speedily take the colour, scytanum and turbistum[78] are added to the dye; such being the name of two drugs which compel it to absorb the colouring matter.

CHAP. 27.—THE USE MADE OF CHRYSOCOLLA IN PAINTING.

When chrysocolla has been thus dyed, painters call it "orobitis," and distinguish two kinds of it, the cleansed[79] orobitis,[80] which is kept for making lomentum,[81] and the liquid, the balls

[76] The "Reseda luteola," Dyer's weed, or Wild woad. See Beckmann's Hist. Inv. Vol. I. p. 478—481, where the identity of the Chrysocolla of the ancients is discussed at considerable length.

[77] As to the identity of this substance, see B. XXXV. c. 52.

[78] These drugs have not been identified.

[79] "Elutam." Though this is the reading given by the Bamberg MS., "luteam" seems preferable; a name owing, probably, to its being coloured with the plant "lutum," as mentioned at the end of this Chapter.

[80] So called, probably, from being made up into little balls resembling the "orobus" or vetch.

[81] A powder, probably, prepared from "cæruleum." See the end of the

being dissolved for use by evaporation.[82] Both these kinds are prepared in Cyprus,[83] but the most esteemed is that made in Armenia, the next best being that of Macedonia: it is Spain, however, that produces the most. The great point of its excellence consists in its producing exactly the tint of corn when in a state of the freshest verdure.[84] Before now, we have seen, at the spectacles exhibited by the Emperor Nero, the arena of the Circus entirely sanded with chrysocolla, when the prince himself, clad in a dress of the same colour, was about to exhibit as a charioteer.[85]

The unlearned multitude of artisans distinguish three kinds of chrysocolla; the rough chrysocolla, which is valued at seven denarii per pound; the middling, worth five denarii; and the bruised, also known as the "herbaceous" chrysocolla, worth three denarii per pound. Before laying on the sanded[86] chrysocolla, they underlay coats of atramentum[87] and parætonium,[88] substances which make it hold, and impart a softness to the colours. The parætonium, as it is naturally very unctuous, and, from its smoothness, extremely tenacious, is laid on first, and is then covered with a coat of atramentum, lest the parætonium, from its extreme whiteness, should impart a paleness to the chrysocolla. The kind known as "lutea," derives its name, it is thought, from the plant called "lutum;" which itself is often pounded with cæruleum[89] instead of real chrysocolla, and used for painting,

present Chapter, and Chapter 57 of this Book. *Littré* renders the words "in lomentum," kept "in the form of powder," without reference to the peculiar pigment known as "lomentum."

[82] "Sudore resolutis."

[83] A strong proof that chrysocolla was a preparation from copper, and not cobalt. Copper owes its name to the Isle of Cyprus, in which it was found in great abundance. See Beckmann's Hist. Inv. Vol. II. p. 460. *Bohn's Edition.*

[84] The colour now known by painters as Emerald green.

[85] As a "trigarius." See B. xviii. c. 72, and B. xxix. c. 5. From Suetonius, c. 18, we learn that the Emperor Caligula, also, had the Circus sanded with minium and chrysocolla. Ajasson is of opinion that the chrysocolla thus employed was a kind of yellow mica or talc.

[86] "Arenosam." He alludes, probably, to the kind previously mentioned as "aspera" or "rough chrysocolla."

[87] For its identification, see B. xxxiv. cc. 26, 32.

[88] See B. xxxv. cc. 12, 13.

[89] Making a spurious kind of "lomentum," possibly, a pigment mentioned in c. 57 of this Book. This passage seems to throw some light upon the words "in lomentum," commented upon in Note 81 above.

making a very inferior kind of green and extremely deceptive.[90]

CHAP. 28.—SEVEN REMEDIES DERIVED FROM CHRYSOCOLLA.

Chrysocolla, too, is made use of in medicine. In combination with wax and oil, it is used as a detergent for wounds; and used by itself in the form of a powder, it acts as a desiccative, and heals them. In cases, too, of quinsy and hardness of breathing, chrysocolla is prescribed, in the form of an electuary, with honey. It acts as an emetic also, and is used as an ingredient in eye-salves, for the purpose of effacing cicatrizations upon the eyes. In green plasters too, it is used, for soothing pain and making scars disappear. This kind of chrysocolla[91] is known by medical men as "acesis," and is altogether different from orobitis.

CHAP. 29.—THE CHRYSOCOLLA OF THE GOLDSMITHS, KNOWN ALSO AS SANTERNA.

The goldsmiths also employ a chrysocolla[92] of their own, for the purpose of soldering gold; and it is from this chrysocolla, they say, that all the other substances, which present a similar green, have received their name. This preparation is made from verdigris of Cyprian copper, the urine of a youth who has not arrived at puberty, and a portion of nitre.[93] It is then pounded with a pestle of Cyprian copper, in a copper mortar, and the name given to the mixture is "santerna." It is in this way that the gold known as "silvery"[94] gold is soldered; one sign of its being so alloyed being its additional brilliancy on the application of santerna. If, on the other hand, the gold is impregnated with copper, it will contract, on coming in contact with the santerna, become dull, and only be soldered with the greatest difficulty: indeed, for this last kind of gold, there is a peculiar solder employed, made of gold and one-seventh part of silver, in addition to the materials above-mentioned, the whole beaten up together.

[90] As to durability, probably.

[91] It was the mineral, probably, in an unprepared state.

[92] Gold-glue or gold-solder.

[93] See B. xxxi. c. 46, as to the "nitrum" of Pliny. Galen, in describing the manufacture of "santerna," omits the nitre as an ingredient.

[94] "Argentosum." The "electrum," probably, mentioned in c. 23.

CHAP. 30.—THE MARVELLOUS OPERATIONS OF NATURE IN SOLDERING METALLIC SUBSTANCES, AND BRINGING THEM TO A STATE OF PERFECTION.

While speaking on this subject, it will be as well to annex the remaining particulars, that our admiration may here be drawn to all the marvels presented by Nature in connection therewith. The proper solder for gold is that above described; for iron, potter's clay; for copper, when in masses, cadmia,[95] and in sheets, alum; for lead and marble, resin. Lead is also united by the aid of white lead;[96] white lead with white lead, by the agency of oil; stannum, with copper file-dust; and silver, with stannum.[97]

For smelting copper and iron, pine-wood is the best, Egyptian papyrus being also very good for the purpose. Gold is melted most easily with a fire made of chaff.[98] Limestone and Thracian stone[99] are ignited by the agency of water, this last being extinguished by the application of oil. Fire, however, is extinguished most readily by the application of vinegar, viscus,[1] and unboiled eggs. Earth will under no circumstance ignite. When charcoal has been once quenched, and then again ignited, it gives out a greater heat than before.

CHAP. 31. (6.)—SILVER.

After stating these facts, we come to speak of silver ore, the next[2] folly of mankind. Silver is never found but in shafts sunk deep in the ground, there being no indications to raise hopes of its existence, no shining sparkles, as in the case of gold. The earth in which it is found is sometimes red, sometimes of an ashy hue. It is impossible, too, to melt[3] it, except

[95] As to the "cadmia" of Pliny, see B. xxxiv. c. 22.

[96] "Plumbum album." Tin, most probably. See B. xxxiv. cc. 47, 48, 49. Also Beckmann's Hist. Inv., Vol. II. p. 219. *Bohn's Edition.*

[97] Of doubtful identity. See B. xxxiv. c. 48.

[98] See Chapter 19 of this Book.

[99] "Thracius lapis." This stone, which is mentioned also by Nicander, Galen, Simplicius, and Dioscorides, has not been identified. Holland has the following Note on this passage: "Which some take for pit-cole, or sea-cole rather, such as commeth from Newcastle by sea; or rather, a kind of jeat (jet)." In either case, he is probably wide of the mark, neither coal nor jet igniting on the application of water.

[1] Or mistletoe.

[2] In due succession to gold.

[3] See B. xxxiv. cc. 47, 53.

in combination with lead[4] or with galena,[5] this last being the name given to the vein of lead that is mostly found running near the veins of the silver ore. When submitted, too, to the action of fire, part of the ore precipitates itself in the form of lead,[6] while the silver is left floating on the surface,[7] like oil on water.

Silver is found in nearly all our provinces, but the finest of all is that of Spain; where it is found, like gold, in uncultivated soils, and in the mountains even. Wherever, too, one vein of silver has been met with, another is sure to be found not far off: a thing that has been remarked, in fact, in the case of nearly all the metals, which would appear from this circumstance to have derived their Greek name of "metalla."[8] It is a remarkable fact, that the shafts opened by Hannibal[9] in the Spanish provinces are still worked, their names being derived from the persons who were the first to discover them. One of these mines, which at the present day is still called Bæbelo, furnished Hannibal with three hundred pounds' weight of silver per day. The mountain is already excavated for a distance of fifteen hundred[10] paces; and throughout the whole of this distance there are water-bearers[11] standing night and day, baling out the water in turns, regulated by the light of torches, and so forming quite a river.

The vein of silver that is found nearest the surface is known

[4] "Plumbum nigrum"—"Black lead," literally: so called by the ancients, in contradistinction to "plumbum album," "white lead," our "tin," probably.

[5] Lead ore; identified with "molybdæna" in B. xxxiv. c. 53. Native sulphurate of lead is now known as "galena." See Beckmann's Hist. Inv. Vol. II. p. 211, where this passage is commented upon.

[6] This Beckmann considers to be the same as the "galena" above mentioned; half-vitrified lead, the "glätte" of the Germans.

[7] The specific gravity of lead is 11.352, and of silver only 10.474.

[8] From the words μετ' ἄλλα, "one after another."

[9] It is supposed that these shafts were in the neighbourhood of Castulo, now Cazlona, near Linares in Spain. It was at Castulo that Hannibal married his rich wife Himilce; and in the hills north of Linares there are ancient silver mines still known as *Los Pozos de Anibal*.

[10] A mile and a half.

[11] The proper reading here, as suggested by Sillig, is not improbably "aquatini," "water-carriers." That, however, found in the MSS. is "Aquitani;" but those were a people, not of Spain, but of Gaul. Hardouin suggests that "Accitani" may be the correct reading, a people of that name in Spain being mentioned in B. iii. c. 5.

by the name of "crudaria."[12] In ancient times, the excavations used to be abandoned the moment alum[13] was met with, and no further[14] search was made. Of late, however, the discovery of a vein of copper beneath alum, has withdrawn any such limits to man's hopes. The exhalations from silver-mines are dangerous to all animals, but to dogs more particularly. The softer they are, the more beautiful gold and silver are considered. It is a matter of surprise with most persons, that lines traced[15] with silver should be black.

## CHAP. 32.—QUICKSILVER.

There is a mineral also found in these veins of silver, which yields a humour that is always[16] liquid, and is known as "quicksilver."[17] It acts as a poison[18] upon everything, and pierces vessels even, making its way through them by the agency of its malignant properties.[19] All substances float upon the surface of quicksilver, with the exception of gold,[20] this being the only substance that it attracts to itself.[21] Hence it is, that it is such an excellent refiner of gold; for, on being briskly shaken in an earthen vessel with gold, it rejects all the impurities that are mixed with it. When once it has thus expelled these superfluities, there is nothing to do but to separate it from the gold; to effect which, it is poured out upon skins that have been well tawed, and so, exuding through them like a sort of perspiration, it leaves the gold in a state of purity behind.[22]

[12] Meaning "raw" silver, apparently.

[13] "Alumen." See B. XXXV. c. 52.

[14] Kircher speaks of this being still the case in his time.

[15] See Chapter 19 of this Book.

[16] "Vomica liquoris æterni." Mercury or quicksilver becomes solidified and assumes a crystalline texture at 40° below zero. It is found chiefly in the state of sulphuret, which is decomposed by distillation with iron or lime. It is also found in a native state.

[17] "Argentum vivum," "living silver."

[18] Ajasson thinks that this is not to be understood literally, but that Pliny's meaning is, that mercury is a universal dissolvent.

[19] "Permanans tabe dirâ."

[20] The specific gravity of mercury is 13.598, that of hammered gold 19.361. Platinum is only a recent discovery.

[21] "Id unum ad se trahit."

[22] "The first use of quicksilver is commonly reckoned a Spanish invention, discovered about the middle of the sixteenth century; but it

Hence it is, too, that when copper has to be gilded,[23] a coat of quicksilver is laid beneath the gold leaf, which it retains in its place with the greatest tenacity: in cases, however, where the leaf is single, or very thin, the presence of the quicksilver is detected by the paleness of the colour.[24] For this reason, persons, when meditating a piece of fraud, have been in the habit of substituting glair of egg for quicksilver, and then laying upon it a coat of hydrargyros, a substance of which we shall make further mention in the appropriate place.[25] Generally speaking, quicksilver has not been found in any large quantities.

appears from Pliny, that the ancients were acquainted with amalgam and its use, not only for separating gold and silver from earthy particles, but also for gilding."—Beckmann, Hist. Inv., Vol. I. p. 15. *Bohn's Edition.*

[23] See the description of the mode of gilding, given in Chapter 20 of this Book. Beckmann has the following remarks on the present passage: "That gold-leaf was affixed to metals by means of quicksilver, with the assistance of heat, in the time of Pliny, we are told by himself in more passages than one. The metal to be gilded was prepared by salts of every kind, and rubbed with pumice-stone in order to clean it thoroughly (see Chapter 20), and to render the surface a little rough. This process is similar to that used at present for gilding with amalgam, by means of heat, especially as amalgamation was known to the ancients. But, to speak the truth, Pliny says nothing of heating the metal *after* the gold is applied, or of evaporating the quicksilver, but of drying the cleaned metal before the gold is laid on. Had he not mentioned quicksilver, his gilding might have been considered as that with gold leaf by means of heat, *dorure en feuille à feu*, in which the gold is laid upon the metal after it has been cleaned and heated, and strongly rubbed with blood-stone, or polished steel. Felibien (*Principes de l'Architecture.* Paris, 1676, p. 280) was undoubtedly right when he regretted that the process of the ancients, the excellence of which is proved by remains of antiquity, has been lost."—Hist. Inv. Vol. II. pp. 294, 295. *Bohn's Edition.*

[24] Beckmann finds considerable difficulties in this description—"I acknowledge that this passage I do not fully comprehend. It seems to say that the quicksilver, when the gold was laid on too thin, appeared through it, but that this might be prevented by mixing with the quicksilver the white of an egg. The quicksilver then remained under the gold: a thing which is impossible. When the smallest drop of quicksilver falls upon gilding, it corrodes the noble metal, and produces an empty spot. It is, therefore, incomprehensible to me how this could be prevented by using the white of an egg. Did Pliny himself completely understand gilding? Perhaps he only meant to say that many artists gave out the cold-gilding, where the gold-leaf was laid on with the white of an egg, as gilding by means of heat."—Hist. Inv. Vol. II. p. 295.

[25] Chapter 42 of this Book. See also Chapter 20, in Note 20, to which it has been mentioned as artificial quicksilver.

### CHAP. 33.—STIMMI, STIBI, ALABASTRUM, LARBASIS, OR PLATYOPHTHALMON.

In the same mines in which silver is found, there is also found a substance which, properly speaking, may be called a stone made of concrete froth.[21] It is white and shining, without being transparent, and has the several names of stimmi, stibi, alabastrum,[22] and larbasis. There are two kinds of it, the male and the female.[23] The latter kind is the more approved of, the male[24] stimmi being more uneven, rougher to the touch, less ponderous, not so radiant, and more gritty. The female kind, on the other hand, is bright and friable, and separates in laminæ, and not in globules.[25]

### CHAP. 34.—SEVEN REMEDIES DERIVED FROM STIMMI.

Stimmi is possessed of certain astringent and refrigerative properties, its principal use, in medicine, being for the eyes. Hence it is that most persons call it "platyophthalmon,"[26] it being extensively employed in the calliblepharic[27] preparations of females, for the purpose of dilating the eyes. It acts also as a check upon fluxes of the eyes and ulcerations of those organs; being used, as a powder, with pounded frankincense and gum. It has the property, too, of arresting discharges of blood from

[21] He is speaking of Antimony.

[22] From its whiteness.

[23] Under the name of "female stimmi," Ajasson thinks that pure, or native, antimony is meant, more particularly the lamelliform variety, remarkable for its smoothness. He thinks it possible, also, that it may have derived its Greek name "larbason," or "larbasis," from its brittleness.

[24] Ajasson thinks that under this name, crude antimony or sulphuret of antimony may have been included; as also sulphuret of lead, sulphuret of antimony and copper, and sulphuret of antimony and silver; the last of which is often found covered with an opaque pellicle.

[25] "Globis." The fracture of sulphuret of antimony is, in reality, small subconchoïdal.

[26] "Eye dilating." Belladonna, a preparation from the Atropa belladonna, is now used in medicine for this purpose. A similar effect is attributed in B. xxv. c. 92, to the plant Anagallis. In reality, the application of prepared antimony would contract the eyelids, and so *appear* to enlarge the eyes. This property is peculiar, Ajasson remarks, to sulphuret of antimony, and sulphuret of antimony and silver.

[27] Preparations "for beautifying the eyebrows." See B. xxi. c. 73, B. xxiii. c. 51, and B. xxxv. c. 56. Omphale, the Lydian queen, who captivated Hercules, is represented by the tragic poet Ion, as using "stimmi" for the purposes of the toilet. It was probably with a preparation of antimony that Jezebel "painted her face, and tired her head." 2 Kings, ix. 30. The "Kohl" used by the females in Egypt and Persia is prepared from antimony.

the brain; and, sprinkled in the form of a powder, it is extremely efficacious for the cure of recent wounds and bites of dogs which have been some time inflicted. For the cure of burns it is remarkably good, mixed with grease, litharge,[28] ceruse, and wax.

The method of preparing it, is to burn it, enclosed in a coat of cow-dung, in a furnace; which done, it is quenched with woman's milk, and pounded with rain-water in a mortar.[29] While this is doing, the thick and turbid part is poured off from time to time into a copper vessel, and purified with nitre.[30] The lees of it, which are rejected, are recognized by their being full of lead and falling to the bottom. The vessel into which the turbid part has been poured off, is then covered with a linen cloth and left untouched for a night; the portion that lies upon the surface being poured off the following day, or else removed with a sponge. The part that has fallen to the bottom of the vessel is regarded as the choicest[31] part, and is left, covered with a linen cloth, to dry in the sun, but not to become parched. This done, it is again pounded in a mortar, and then divided into tablets. But the main thing of all is, to observe such a degree of nicety in heating it, as not to let it become lead.[32] Some persons, when preparing it on the fire, use grease[33] instead of dung. Others, again, bruise it in water and then pass it through a triple strainer of linen cloth; after which, they reject the lees, and pour off the remainder of the liquid, collecting all that is deposited at the bottom, and using it as an ingredient in plasters and eye-salves.

CHAP. 35.—THE SCORIA OF SILVER. SIX REMEDIES DERIVED FROM IT.

The scoria of silver is called by the Greeks "helcysma."[34]

[28] "Spuma argenti." See the next Chapter.

[29] According to Dioscorides, it was prepared as a cosmetic by enclosing it in a lump of dough, and then burning it in the coals till reduced to a cinder. It was then extinguished with milk and wine, and again placed upon coals, and blown till ignition.

[30] As to the "nitrum" of the ancients, see B. xxxi. c. 46.

[31] "Flos"—literally the "flower."

[32] "From this passage we may infer that the metal antimony was occasionally seen by the ancients, though not recognized by them as distinct from lead."—Dana's System of Mineralogy, p. 418. New York, 1850.

[33] Pliny has here mistaken the sense of the word στέαρ, which in the passage of Dioscorides, B. v. c. 99, borrowed probably from the same source, evidently means *dough*, and not grease.

[34] From ἕλκω, "to drag"—in consequence of its viscous consistency, Hardouin says.

It has certain restringent and refrigerative effects upon bodies, and, like molybdæna, of which we shall make further mention when speaking[35] of lead, is used as an ingredient in making plasters, those more particularly which are to promote the cicatrization of wounds. It is employed also for the cure of tenesmus and dysentery, being injected in the form of a clyster with myrtle-oil. It forms an ingredient, too, in the medicaments known as "liparæ,"[36] for the removal of fleshy excrescences in sores, ulcerations arising from chafing, or running ulcers on the head.

The same mines also furnish us with the preparation known as "scum of silver."[37] There are three[38] varieties of it; the best, known as "chrysitis;" the second best, the name of which is "argyritis;" and a third kind, which is called "molybditis." In most instances, too, all these tints are to be found in the same cake.[39]

The most approved kind is that of Attica; the next being that which comes from Spain. Chrysitis is the produce of the metallic vein,[40] argyritis is obtained from the silver itself, and molybditis is the result of the smelting of lead,[41] a work that is done at Puteoli; to which last circumstance, in fact, molybditis owes its name.[42] All these substances are prepared in the following manner: the metal is first melted, and then allowed to flow from a more elevated receiver into a lower. From this last it is lifted by the aid of iron spits, and is then twirled round at the end of the spit in the midst of the flames, in order to make it all the lighter. Thus, as may be easily per-

[35] In B. xxxiv. c. 53.

[36] Cerates, adipose or oleaginous plasters. See B. xxiii. c. 81.

[37] "Spuma argenti." This he uses as a general name for fused oxide of lead, the Litharge of commerce.

[38] Ajasson thinks it possible that the "chrysitis," or "golden" litharge, may have been the yellow deutoxide of lead; the argyritis, or "silver" litharge, the white variety of the same deutoxide; and the "molybditis," or "leaden" litharge, a general name for sulphuret of lead and silver; of lead and antimony; of lead, antimony, and bismuth; and of lead, antimony, and copper. Or perhaps, he thinks, they may have been the respective names of yellow or golden litharge, white or silver litharge, and terne. With the latter opinion Delafosse seems to coincide.

[39] "Tubulis." These cakes were probably made in a tubular form.

[40] "Vena;" meaning the ore probably in its raw state, and mixed with earth. All these distinctions are probably unfounded.

[41] See B. xxxiv. c. 53.

[42] Of "Puteolana."

ceived from the name, it is in reality the scum of a substance in a state of fusion—of the future metal, in fact. It differs from scoria in the same way that the scum of a liquid differs from the lees, the one[43] being an excretion thrown out by the metal while purifying itself, the other[44] an excretion of the metal when purified.

Some persons distinguish two kinds of scum of silver, and give them the names of "scirerytis" and "peumene;"[45] a third variety being molybdæna, of which we shall have to make further mention when treating of lead.[46] To make this scum fit for use, the cakes are again broken into pieces the size of a hazel-nut, and then melted, the fire being briskly blown with the bellows. For the purpose of separating the charcoal and ashes from it, it is then rinsed with vinegar or with wine, and is so quenched. In the case of argyritis, it is recommended, in order to blanch it, to break it into pieces the size of a bean, and then to boil it with water in an earthen vessel, first putting with it, wrapped in linen cloths, some new wheat and barley, which are left there till they have lost the outer coat. This done, they bruise the whole in mortars for six consecutive days, taking care to rinse the mixture in cold water three times a day, and after that, in an infusion of hot water and fossil salt, one obolus of the latter to every pound of scum: at the end of the six days it is put away for keeping in a vessel of lead.

Some persons boil it with white beans and a ptisan[47] of barley, and then dry it in the sun; others, again, with white wool and beans, till such time as it imparts no darkness to the wool; after which, first adding fossil[48] salt, they change the water from time to time, and then dry it during the forty hottest days of summer. In some instances the practice is, to boil it in water in a swine's paunch, and then to take it out and rub it with nitre; after which, following the preceding method, they pound it in a mortar with salt. Some again

[43] The litharge. [44] The scoria.

[45] Nothing whatever is known as to the identity of these varieties of litharge. Indeed the words themselves are spelt in various ways in the respective MSS.

[46] In B. xxxiv. c. 53, where he identifies it with "galena," mentioned in Chapter 31 of this Book.

[47] See B. xviii. c. 13, B. xxi. c. 61, and B. xxii. c. 66.

[48] Sal gem, or common salt.

never boil it, but pound it only with salt, and then rinse it with water.

Scum of silver is used as an ingredient in eye-salves, and, in the form of a liniment, by females, for the purpose of removing spots and blemishes caused by scars, as also in washes for the hair. Its properties are desiccative, emollient, refrigerative, temperative, and detergent. It fills up cavities in the flesh produced by ulceration, and reduces tumours. For all these purposes it is employed as an ingredient in plaster, and in the liparæ previously mentioned.[49] In combination with rue, myrtle, and vinegar, it removes erysipelas: and, with myrtle and wax, it is a cure for chilblains.

CHAP. 36. (7.)—MINIUM: FOR WHAT RELIGIOUS PURPOSES IT WAS USED BY THE ANCIENTS.

It is also in silver-mines that minium[50] is found, a pigment held at the present day in very high estimation; and by the Romans in former times not only held in the highest estimation, but used for sacred purposes as well. Verrius enumerates certain authors, upon whose testimony we find it satisfactorily established that it was the custom upon festivals to colour the face of the statue of Jupiter even with minium, as well as the bodies[51] of triumphant generals; and that it was in this guise that Camillus celebrated his triumph. We find, too, that it is through the same religious motives that it is employed at the present day for colouring the unguents used at triumphal banquets, and that it is the first duty of the censors to make a contract for painting the statue of Jupiter[52] with this colour.

For my own part, I am quite at a loss for the origin of this usage; but it is a well-known fact, that at the present day even, minium is in great esteem with the nations of Æthiopia, their nobles being in the habit of staining the body all over with it, and this being the colour appropriated to the statues

[49] In this Chapter. See note 36 above.

[50] The minium spoken of in this and the following Chapter is our Cinnabar, a bisulphurate of mercury. This ore is the great source of the mercury of commerce, from which it is obtained by sublimation. When pure, it is the same as the manufactured vermilion of commerce.

[51] Intended, no doubt, to be typical of blood and carnage; and indicative of a very low state of civilization.

[52] See B. XXXV. c. 45.

of their gods. I shall therefore use all the more diligence in enquiring into all the known facts respecting it.

CHAP. 37.—THE DISCOVERY AND ORIGIN OF MINIUM.

Theophrastus states that, ninety years before the magistracy of Praxibulus at Athens—a date which answers to the year of our City, 439—minium was discovered by Callias the Athenian, who was in hopes to extract gold, by submitting to the action of fire the red sand that was found in the silver-mines. This, he says, was the first discovery of minium. He states, also, that in his own time, it was already found in Spain, but of a harsh and sandy nature; as also in Colchis, upon a certain inaccessible rock there, from which it was brought down by the agency of darts. This, however, he says, was only an adulterated kind of minium, the best of all being that procured in the Cilbian Plains,[53] above Ephesus, the sand of which has just the colour of the kermes berry.[54] This sand, he informs us, is first ground to powder and then washed, the portion that settles at the bottom being subjected to a second washing. From this circumstance, he says, arises a difference in the article; some persons being in the habit of preparing their minium with a single washing, while with others it is more diluted. The best kind, however, he says, is that which has undergone a second washing.

CHAP. 38.—CINNABARIS.

I am not surprised that this colour should have been held in such high esteem; for already, in the days of the Trojan War, rubrica[55] was highly valued, as appears from the testimony of Homer, who particularly notices the ships that were coloured with it, whereas, in reference to other colours and paintings, he but rarely notices them. The Greeks call this red earth "miltos," and give to minium the name of "cinnabaris," and hence the error[56] caused by the two meanings of

[53] See B. v. c. 31. [54] See B. xvi. c. 12, and B. xxiv. c. 4.

[55] The same as the miltos mentioned below, "miltos" being the word used by Homer, Il. II. 637. This substance is totally different from the minium of the preceding Chapters, and from that mentioned in c. 40. It is our red ochre, peroxide of iron, mixed in a greater or less degree with argillaceous earth.

[56] See B. xxix. c. 8; where he speaks of the mistake made by the physicians in giving mineral vermilion or minium to their patients instead of

the same word; this being properly the name given to the thick matter which issues from the dragon when crushed beneath the weight of the dying elephant, mixed with the blood of either animal, as already described.[57] Indeed this last is the only colour that in painting gives a proper representation of blood. This cinnabaris, too, is extremely useful as an ingredient in antidotes and various medicaments. But, by Hercules! our physicians, because minium also has the name of "cinnabaris," use it as a substitute for the other, and so employ a poison, as we shall shortly[58] show it to be.

### CHAP. 39.—THE EMPLOYMENT OF CINNABARIS IN PAINTING.

The ancients used to paint with cinnabaris[59] those pictures of one colour, which are still known among us as "monochromata."[60] They painted also with the minium of Ephesus:[61] but the use of this last has been abandoned, from the vast trouble which the proper keeping of the picture entailed. And then besides, both these colours were thought to be too harsh; the consequence of which is, that painters have now adopted the use of rubrica[62] and of sinopis, substances of which I shall make further mention in the appropriate places.[63]

Cinnabaris[64] is adulterated by the agency of goats' blood, or of bruised sorb-apples. The price of genuine cinnabaris is fifty sesterces per pound.

### CHAP. 40.—THE VARIOUS KINDS OF MINIUM. THE USE MADE OF IT IN PAINTING.

According to Juba minium is also a production of Carmania,[65] and Timagenes says that it is found in Æthiopia. But from neither of those regions is it imported to Rome, nor, indeed,

Indian cinnabar. The latter substance is probably identical with that which is now used for varnishes, being imported from India, and still known as "dragons' blood," the resin of the Ptero-carpus draco, or Calamus palm.

[57] In B. viii. c. 12.

[58] In Chapter 41.

[59] The dragon's blood, mentioned in the preceding Chapter.

[60] "Single colour paintings." See B. xxxv. cc. 5, 11, 34, 36.

[61] Mentioned in Chapter 37.

[62] The "miltos" of the preceding Chapter. See Note 55 above.

[63] In B. xxxv. c. 13, *et seq.*

[64] He is here speaking of our cinnabar, or vermilion, mentioned in Chapter 36.

[65] See B. vi. cc. 27, 28, 32.

from hardly any other quarter but Spain; that of most note coming from Sisapo,[66] a territory of Bætica, the mine of minium there forming a part of the revenues of the Roman people. Indeed there is nothing guarded with a more constant circumspection; for it is not allowable to reduce and refine the ore upon the spot, it being brought to Rome in a crude state and under seal, to the amount of about two thousand pounds per annum. At Rome, the process of washing is performed, and, in the sale of it, the price is regulated by statute; it not being allowed to exceed[67] seventy sesterces per pound. There are numerous ways, however, of adulterating it, a source of considerable plunder to the company.[68]

For there is, in fact, another kind[69] of minium, found in most silver-mines as well as lead-mines, and prepared by the calcination of certain stones that are found mixed with the metallic vein—not the minerals, however, to the fluid humours of which we have given[70] the name of quicksilver; for if those are subjected to the action of fire they will yield silver—but another kind of stone[71] that is found with them. These barren[72] stones, too, may be recognized by their uniform leaden colour, and it is only when in the furnace that they turn red. After being duly calcined they are pulverized, and thus form a minium of second-rate quality, known to but very few, and far inferior to the produce of the native sand that we have mentioned.[73] It is with this substance, then, as also with syricum, that the genuine minium is adulterated in the manufactories of the company. How syricum is prepared we shall describe in the appropriate place.[74] One motive, however, for giving an undercoat of syricum to minium, is the evident saving of expense that results therefrom. Minium, too, in another way affords a very convenient opportunity to painters for pilfering, by wash-

[66] See B. iii. c. 3, Vol. I. p. 163. He alludes to the district of Almaden, in Andalusia, still famous for its quicksilver mines.

[67] When sold by the "publicani," or farmers of the revenue.

[68] Of the publicani.

[69] Red oxide of lead, a much inferior pigment to cinnabar, or the minium of Chapter 36.

[70] In Chapter 32 of this Book.

[71] Dana informs us that minium is usually associated with galena and with calamine. Syst. Mineral. p. 495.

[72] "Steriles." Barren of silver, probably; though Hardouin thinks that it means "barren of lead." Holland renders it "barraine and void of the right vermilion."

[73] In Chapter 37.

[74] B. xxxv. c. 24.

ing their brushes,[75] filled with the colouring matter, every now and then. The minium of course falls to the bottom, and is thus so much gained by the thief.

Genuine minium ought to have the brilliant colour of the kermes berry;[76] but when that of inferior quality is used for walls, the brightness of it is sure to be tarnished by the moisture, and this too, although the substance itself is a sort of metallic mildew. In the mines of Sisapo, the veins are composed exclusively of the sandy particles of minium, without the intermixture of any silver whatever; the practice being to melt it like gold. Minium is assayed by the agency of gold in a state of incandescence: if it has been adulterated, it will turn black, but if genuine, it retains its colour. I find it stated also that minium is adulterated with lime; the proper mode of detecting which, is similarly to employ a sheet of red hot iron, if there should happen to be no gold at hand.

To objects painted with minium the action of the sun and moon is highly injurious. The proper method of avoiding this inconvenience, is to dry the wall, and then to apply, with a hair brush, hot Punic wax, melted with oil; after which, the varnish must be heated, with an application of gall-nuts, burnt to a red heat, till it quite perspires. This done, it must be smoothed down with rollers[77] made of wax, and then polished with clean linen cloths, like marble, when made to shine. Persons employed in the manufactories in preparing minium protect the face with masks of loose bladder-skin, in order to avoid inhaling the dust, which is highly pernicious; the covering being at the same time sufficiently transparent to admit of being seen through.

Minium is employed also for writing[78] in books; and the letters made with it being more distinct, even on gold or marble, it is used for the inscriptions upon tombs.

[75] When hired by the job for colouring walls or objects of art. See B. xxxv. c. 12.

[76] See B. xvi. c. 12, and B. xxiv. c. 4.

[77] "Candelis." The Abate Requeno thinks that these "candelæ" were used as a delicate cauterium, simply to keep the wax soft, that it might receive a polish from the friction of the linen.

[78] Hence the use of it in the middle ages; a reminiscence of which still exists in our word "rubric."

CHAP. 41. (8.)—HYDRARGYROS. REMEDIES DERIVED FROM MINIUM.

Human industry has also discovered a method of extracting hydrargyros[79] from the inferior minium, a substitute for quicksilver, the further mention of which was deferred, a few pages before,[80] to the present occasion. There are two methods of preparing this substance; either by pounding minium and vinegar with a brazen pestle and mortar, or else by putting minium into flat earthen pans, covered with a lid, and then enclosed in an iron seething-pot well luted with potter's clay. A fire is then lighted under the pans, and the flame kept continually burning by the aid of the bellows; which done, the steam is carefully removed, that is found adhering to the lid, being like silver in colour, and similar to water in its fluidity. This liquid, too, is easily made to separate in globules, which, from their fluid nature, readily unite.[81]

As it is a fact generally admitted, that minium is a poison,[82] I look upon all the recipes given as highly dangerous which recommend its employment for medicinal purposes; with the exception, perhaps, of those cases in which it is applied to the head or abdomen, for the purpose of arresting hæmorrhage, due care being taken that it is not allowed to penetrate to the viscera, or to touch any sore. Beyond such cases as these, for my own part, I should never recommend it to be used in medicine.

CHAP. 42.—THE METHOD OF GILDING SILVER.

At the present day silver is gilded almost exclusively by the agency of hydrargyros;[83] and a similar method should always be employed in laying gold leaf upon copper. But the same fraud which ever shows itself so extremely ingenious in all departments of human industry, has devised a

[79] Or artificial quicksilver. In reality, hydrargyrus is prepared from the *genuine* minium of Pliny, the cinnabar mentioned in Chapter 36: it being obtained by the sublimation of sulphuret of mercury.

[80] In Chapters 20 and 32.

[81] This, probably, is the meaning of "lubrico humore compluere."

[82] See the end of Chapter 38.

[83] Artificial quicksilver is still used for this purpose. See Note 24 to Chapter 32 of this Book; also Beckmann's Hist. Inv. Vol. II. p. 295. *Bohn's Edition.*

plan of substituting an inferior material, as already mentioned.[84]

### CHAP. 43.—TOUCHSTONES FOR TESTING GOLD.

A description of gold and silver is necessarily accompanied by that of the stone known as "coticula."[85] In former times, according to Theophrastus, this stone was nowhere to be found, except in the river Tmolus,[86] but at the present day it is found in numerous places. By some persons it is known as the "Heraclian," and by others as the "Lydian" stone. It is found in pieces of moderate size, and never exceeding four inches in length by two in breadth. The side that has lain facing the sun is superior[87] to that which has lain next to the ground. Persons of experience in these matters, when they have scraped a particle off the ore with this stone, as with a file, can tell in a moment the proportion of gold there is in it, how much silver, or how much copper; and this to a scruple, their accuracy being so marvellous that they are never mistaken.

### CHAP. 44.—THE DIFFERENT KINDS OF SILVER, AND THE MODES OF TESTING IT.

There are two kinds of silver. On placing a piece of it upon an iron fire-shovel at a white heat, if the metal remains perfectly white, it is of the best quality: if again it turns of a reddish colour, it is inferior; but if it becomes black, it is worthless. Fraud, however, has devised means of stultifying this test even; for by keeping the shovel immersed in men's urine, the piece of silver absorbs it as it burns, and so displays a fictitious whiteness. There is also a kind of test with reference to polished silver: when the human breath comes

[84] In Chapter 32. He alludes to the use of glair of eggs.

[85] Literally "whetstone." He is speaking of the stone known to us as Touchstone, Lydian stone, or Basanite—"a velvet-black siliceous stone or flinty jasper, used on account of its hardness and black colour for trying the purity of the precious metals. The colour left on the stone after rubbing the metal across it, indicates to the experienced eye the amount of the alloy."—Dana, Syst. Mineral. p. 242.

[86] In Lydia. See B. v. cc. 30, 31.

[87] As a test. At the present day, concentrated nitric acid is dropped on the mark left by the metal; and the more readily the mark is effaced, the less pure is the metal.

in contact with it, it should immediately be covered with steam,[88] the cloudiness disappearing at once.

CHAP. 45. (9.)—MIRRORS.

It is generally supposed among us that it is only the very finest silver that admits of being laminated, and so converted into mirrors. Pure silver was formerly used for the purpose, but, at the present day, this too has been corrupted by the devices of fraud. But, really, it is a very marvellous property that this metal has, of reflecting objects; a property which, it is generally agreed, results from the repercussion of the air,[89] thrown back as it is from the metal upon the eyes. The same too is the action that takes place when we use a mirror. If, again, a thick plate of this metal is highly polished, and is rendered slightly concave,[90] the image or object reflected is enlarged to an immense extent; so vast is the difference between a surface receiving,[91] and throwing back the air. Even more than this—drinking-cups are now made in such a manner, as to be filled inside with numerous[92] concave facets, like so many mirrors; so that if but one person looks into the interior, he sees reflected a whole multitude of persons.

Mirrors, too, have been invented to reflect monstrous[93] forms; those, for instance, which have been consecrated in the Temple at Smyrna. This, however, all results from the configuration given to the metal; and it makes all the difference whether the surface has a concave form like the section of a drinking cup, or whether it is [convex] like a Thracian[94] buckler; whether it is depressed in the middle or elevated; whether the surface has a direction[95] transversely or obliquely; or whether it runs horizontally or vertically; the peculiar configuration of the surface which receives the shadows,

[88] This seems to be the meaning of "si sudet protinus."

[89] A very far-fetched explanation, and very wide of the mark.

[90] "Paulum propulsa."

[91] Which he supposes a concave surface to do.

[92] This passage is noticed by Beckmann, in his account of Mirrors; Vol. II. p. 58. *Bohn's Edition.*

[93] Distorting the image reflected, by reason of the irregularities of the surface. See Seneca, Nat. Quæst. B. i. c. 5.

[94] "Parma Thræcidica."

[95] He probably means, whether the surface is made convex or concave at these different angles.

causing them to undergo corresponding distortions: for, in fact, the image is nothing else but the shadow of the object collected upon the bright surface of the metal.

However, to finish our description of mirrors on the present[96] occasion—the best, in the times of our ancestors, were those of Brundisium,[97] composed of a mixture of[98] stannum and copper: at a later period, however, those made of silver were preferred, Pasiteles[99] being the first who made them, in the time[1] of Pompeius Magnus. More recently,[2] a notion has arisen that the object is reflected with greater distinctness, by the application to the back of the mirror of a layer of gold.[3]

[96] A subject to which he returns in various parts of B. xxxvi.

[97] See B. xxxiv. c. 48.

[98] As to the identification of "stannum," on which there have been great differences of opinion, see B. xxxiv. cc. 47, 48, and the Notes.

[99] For some account of this artist, see Chapter 55 and the Notes at the end of this Book.

[1] "Silver mirrors were known long before this period, as is proved by a passage in the Mostellaria of Plautus, A. 1, S. 3, l. 101, where they are distinctly mentioned. To reconcile this contradiction, Meursius remarks that Pliny speaks only of his countrymen, and not of the Greeks, who had such articles much earlier, though the scene in Plautus is at Athens."—Beckmann, Hist. Inv. Vol. II. p. 62. *Bohn's Edition.*

[2] "Nuper credi cœptum certiorem imaginem reddi auro opposito aversis."—"Of what Pliny says here I can give no explanation. Hardouin (qy. if not Dalechamps?) is of opinion that mirrors, according to the newest invention, at that period were covered behind with a plate of gold, as our mirrors are with an amalgam. But as the ancient plates of silver were not transparent, how could the gold at the back of them produce any effect in regard to the image? May not the meaning be that a thin plate of gold was placed at some distance before the mirror, in order to throw more light upon its surface? Whatever may have been the case, Pliny himself seems not to have had much confidence in the invention."—Beckmann, Hist. Inv. Vol. II. p. 62.

[3] Dr. Watson (Chemical Essays, Vol. IV. p. 246) seems to think that Pliny is here speaking of *glass* mirrors: "If we admit that Pliny was acquainted with glass mirrors, we may thus understand what he says respecting an invention which was then new, of applying gold behind a mirror. Instead of an amalgam of tin, some one had proposed to cover the back of the mirror with an amalgam of gold, with which the ancients were certainly acquainted, and which they employed in gilding." See Chapter 20 of the present Book. On the above passage by Dr. Watson, Beckmann has the following remarks: "This conjecture appears, at any rate, to be ingenious; but when I read the passage again, without prejudice, I can hardly believe that Pliny alludes to a plate of glass in a place where he speaks only of metallic mirrors; and the overlaying with amalgam requires too much art to allow me to ascribe it to such a period with-

CHAP 46.—EGYPTIAN SILVER.

The people of Egypt stain their silver vessels, that they may see represented in them their god Anubis;[4] and it is the custom with them to paint,[5] and not to chase, their silver. This usage has now passed to our own triumphal statues even; and, a truly marvellous fact, the value of silver has been enhanced by deadening its brilliancy.[6] The following is the method adopted: with the silver are mixed two-thirds of the very finest Cyprian copper, that known as "coronarium,"[7] and a proportion of live sulphur equal to that of the silver. The whole of these are then melted in an earthen vessel well luted with potter's clay, the operation being completed when the cover becomes detached from the vessel. Silver admits also of being blackened with the yolk of a hard-boiled egg; a tint, however, which is removed by the application of vinegar and chalk.

The Triumvir Antonius alloyed the silver denarius with iron: and in spurious coin there is an alloy of copper employed. Some, again, curtail[8] the proper weight of our denarii, the legitimate proportion being eighty-four denarii to a pound of silver. It was in consequence of these frauds that a method was devised of assaying the denarius: the law ordaining which was so much to the taste of the plebeians, that in every quarter of the City there was a full-length statue erected[9] in honour of Marius Gratidianus. It is truly marvellous, that in this art, and in this only, the various methods of falsification should be made a study:[10] for the sample of

out sufficient proof. I consider it more probable, that some person had tried, by means of a polished plate of gold, to collect the rays of light, and to throw them either on the mirror or the object, in order to render the image brighter."—Hist. Inv. Vol. II. p. 72.

[4] The dog-headed divinity. The seat of his worship was at Cynopolis, mentioned in B. v. c. 11. Under the Empire his worship became widely spread both in Greece and at Rome.

[5] Under the word "pingit," he probably includes the art of enamelling silver.

[6] "Fulgoris excæcati."

[7] "Chaplet" copper.

[8] He either alludes to the practice of clipping the coin, or else to the issue of forged silver denarii, short of weight.

[9] During the prætorship of Marius Gratidianus. He was on terms of great intimacy with Cicero, and was murdered by Catiline in a most barbarous manner during the proscriptions of Sylla.

[10] By public enactment probably; samples of the false denarius being

the false denarius is now an object of careful examination, and people absolutely buy the counterfeit coin at the price of many genuine ones!

CHAP. 47. (10.)—INSTANCES OF IMMENSE WEALTH. PERSONS WHO HAVE POSSESSED THE GREATEST SUMS OF MONEY.

The ancients had no number whereby to express a larger sum than one hundred thousand; and hence it is that, at the present day, we reckon by multiples of that number, as, for instance, ten times one hundred thousand, and so on.[11] For these multiplications we are indebted to usury and the use of coined money; and hence, too, the expression "æs alienum," or "another man's money," which we still use.[12] In later times, again, the surname "Dives"[13] was given to some: only be it known to all, that the man who first received this surname became a bankrupt and so bubbled his creditors.[14] M. Crassus,[15] a member of the same family, used to say that no man was rich, who could not maintain a legion upon his yearly income. He possessed in land two hundred millions[16] of sesterces, being the richest Roman citizen next to Sylla. Nor was even this enough for him, but he must want to possess all the gold of the Parthians too![17] And yet, although he was the first to become memorable for his opulence—so pleasant is the task of stigmatizing this insatiate cupidity—we have known of many manumitted slaves, since his time, much more wealthy than he ever was; three for example, all at the same

sold for the purpose of showing the difference between it and the genuine coin.

[11] Twenty times one hundred thousand, &c.

[12] As signifying a "debt owing to another."

[13] "The Rich."

[14] This seems the best translation for "decoxisse creditoribus suis," which literally means that he "boiled" or "melted away" his fortune from his creditors. In this remark Pliny is more witty than usual.

[15] The Triumvir. The first person mentioned in Roman history as having the cognomen "Dives," is P. Licinius Crassus, the personage mentioned in B. xxi. c. 4. As he attained the highest honours of the state, and died universally respected, he cannot be the person so opprobriously spoken of by Pliny.

[16] The meaning appears to be doubtful here, as it is not clear whether "sesterces," or "sestertia," "thousands of sesterces," is meant.

[17] Who cut off his head after his death, and poured molten gold down his throat.

time, in the reign of the Emperor Claudius, Pallas,[18] Callistus,[19] and Narcissus.[20]

But to omit all further mention of these men, as though they were still[21] the rulers of the empire, let us turn to C. Cæcilius Claudius Isidorus, who, in the consulship of C. Asinius Gallus and C. Marcius Censorinus,[22] upon the sixth day before the calends of February, declared by his will, that though he had suffered great losses through the civil wars, he was still able to leave behind him four thousand one hundred and sixteen slaves, three thousand six hundred pairs of oxen, and two hundred and fifty-seven thousand heads of other kind of cattle, besides, in ready money, sixty millions of sesterces. Upon his funeral, also, he ordered eleven hundred thousand sesterces to be expended.

And yet, supposing all these enormous riches to be added together, how small a proportion will they bear to the wealth of Ptolemæus; the person who, according to Varro, when Pompeius was on his expedition in the countries adjoining Judæa, entertained eight thousand horsemen at his own expense, and gave a repast to one thousand guests, setting before every one of them a drinking-cup of gold, and changing these vessels at every course! And then, again, how insignificant would his wealth have been by the side of that of Pythius the Bithynian[23]—for I here make no mention of kings, be it

[18] Originally the slave of Antonia, the mother of Claudius. Agrippina, the wife of Claudius, admitted him to her embraces, and in conjunction with her he for some time ruled the destinies of the Roman Empire. He was poisoned by order of Nero, A.D. 63.

[19] C. Julius Callistus, the freedman of Caligula, in whose assassination he was an accomplice. The physician Scribonius Largus dedicated his work to Callistus.

[20] A freedman of the Emperor Claudius, whose epistolary correspondence he superintended. He was put to death on the accession of Nero, A.D. 54.

[21] In which case it would be dangerous to speak of them.

[22] A.U.C. 746.

[23] According to some authorities, he was a Lydian. He derived his wealth from his gold mines in the neighbourhood of Celænæ in Phrygia, and would appear, in spite of Pliny's reservation, to have been little less than a king. His five sons accompanied Xerxes; but Pythius, alarmed by an eclipse of the sun, begged that the eldest might be left behind. Upon this, Xerxes had the youth put to death, and his body cut in two, the army being ordered to march between the portions, which were placed on either side of the road. His other sons were all slain in battle, and Pythius passed the rest of his life in solitude.

remarked. He it was who gave the celebrated plane-tree and vine of gold to King Darius, and who entertained at a banquet the troops of Xerxes, seven hundred and eighty-eight thousand men in all; with a promise of pay and corn for the whole of them during the next five months, on condition that one at least of his five children, who had been drawn for service, should be left to him as the solace of his old age. And yet, let any one compare the wealth of Pythius to that possessed by King Crœsus!

In the name of all that is unfortunate, what madness it is for human nature to centre its desires upon a thing that has either fallen to the lot of slaves, or else has reached no known limit in the aspirations even of kings!

### CHAP. 48.—AT WHAT PERIOD THE ROMAN PEOPLE FIRST MADE VOLUNTARY CONTRIBUTIONS.

The Roman people first began to make voluntary contributions[24] in the consulship of Spurius Posthumius and Quintus Marcius.[25] So abundant was money at that period, that the people assessed themselves for a contribution to L. Scipio, to defray the expenses of the games which he celebrated.[26] As to the contribution of the sixth part of an as, for the purpose of defraying the funeral expenses of Agrippa Menenius, I look upon that to have been a mark of respect paid to him, an honour, too, that was rendered necessary by his poverty, rather than in the light of a largess.

### CHAP. 49. (11.)—INSTANCES OF LUXURY IN SILVER PLATE.

The caprice of the human mind is marvellously exemplified in the varying fashions of silver plate; the work of no individual manufactory being for any long time in vogue. At one period, the Furnian plate, at another the Clodian, and at another the Gratian,[27] is all the rage—for we borrow the shop even at our tables.[28]—Now again, it is embossed plate[29] that

[24] "Stipem spargere." [25] A.U.C. 568.

[26] In performance of a vow made in the war with King Antiochus. See Livy, B. xxxix.

[27] So called from the silversmiths who respectively introduced them. The Gratian plate is mentioned by Martial, B. iv. Epigr. 39.

[28] "Etenim tabernas mensis adoptamus."

[29] "Anaglypta." Plate chased in relief. It is mentioned in the Epigram of Martial above referred to.

we are in search of, and silver deeply chiselled around the marginal lines of the figures painted[30] upon it; and now we are building up on our sideboards fresh tiers[31] of tables for supporting the various dishes. Other articles of plate we nicely pare away,[32] it being an object that the file may remove as much of the metal as possible.

We find the orator Calvus complaining that the saucepans are made of silver; but it has been left for us to invent a plan of covering our very carriages[33] with chased silver, and it was in our own age that Poppæa, the wife of the Emperor Nero, ordered her favourite mules to be shod even with gold!

### CHAP. 50.—INSTANCES OF THE FRUGALITY OF THE ANCIENTS IN REFERENCE TO SILVER PLATE.

The younger Scipio Africanus left to his heir thirty-two pounds' weight of silver; the same person who, on his triumph over the Carthaginians, displayed four thousand three hundred and seventy pounds' weight of that metal. Such was the sum total of the silver possessed by the whole of the inhabitants of Carthage, that rival of Rome for the empire of the world! How many a Roman since then has surpassed her in his display of plate for a single table! After the destruction of Numantia, the same Africanus gave to his soldiers, on the day of his triumph, a largess of seven denarii each—and right worthy were they of such a general, when satisfied with such a sum! His brother, Scipio Allobrogicus,[34] was the very first who possessed one thousand pounds' weight of silver,

[30] "Asperitatemque exciso circa liniarum picturas,"—a passage, the obscurity of which, as Littré remarks, seems to set translation at defiance.

[31] He alludes, probably to tiers of shelves on the beaufets or sideboards —"repositoria"—similar to those used for the display of plate in the middle ages. Petronius Arbiter speaks of a round "repositorium," which seems to have borne a considerable resemblance to our "dumb waiters." The "repositoria" here alluded to by Pliny were probably made of silver.

[32] "Interradimus."

[33] "Carrucæ." The "carruca" was a carriage, the name of which only occurs under the emperors, the present being the first mention of it. It had four wheels and was used in travelling, like the "carpentum." Martial, B. iii. Epig. 47, uses the word as synonymous with "rheda." Alexander Severus allowed the senators to have them plated with silver. The name is of Celtic origin, and is the basis of the mediæval word "carucate," and the French *carrosse*.

[34] So called from his victory over the Allobroges.

but Drusus Livius, when he was tribune of the people, possessed ten thousand. As to the fact that an ancient warrior,[35] a man, too, who had enjoyed a triumph, should have incurred the notice of the censor for being in possession of five pounds' weight of silver, it is a thing that would appear quite fabulous at the present day.[36] The same, too, with the instance of Catus Ælius,[37] who, when consul, after being found by the Ætolian ambassadors taking his morning meal[38] off of common earthenware, refused to receive the silver vessels which they sent him; and, indeed, was never in possession, to the last day of his life, of any silver at all, with the exception of two drinking-cups, which had been presented to him as the reward of his valour, by L. Paulus,[39] his father-in-law, on the conquest of King Perseus.

We read, too, that the Carthaginian ambassadors declared that no people lived on more amicable terms among themselves than the Romans, for that wherever they had dined they had always met with the same[40] silver plate. And yet, by Hercules! to my own knowledge, Pompeius Paulinus, son of a Roman of equestrian rank at Arelate,[41] a member, too, of a family, on the paternal side, that was graced with the fur,[42] had with him, when serving with the army, and that, too, in a war against the most savage nations, a service of silver plate that weighed twelve thousand pounds!

[35] In allusion to the case of P. Cornelius Rufinus, the consul, who was denounced in the senate by the censors C. Fabricius Luscinus and Q. Æmilius Rufus, for being in possession of a certain quantity of silver plate. This story is also referred to in B. xviii. c. 8, where *ten* pounds is the quantity mentioned.

[36] This is said ironically.

[37] Sextus Ælius Pœtus Catus, Consul B.C. 198.

[38] "Prandentem."

[39] L. Paulus Æmilius.

[40] It being lent from house to house. This, no doubt, was said ironically, and as a sneer at their poverty.

[41] Now Arles. It was made a military colony in the time of Augustus. See B. iii. c. 5, and B. x. c. 57.

[42] "Pellitum." There has been considerable doubt as to the meaning of this, but it is most probable that the "privilege of the fur," or in other words, a license to be clad in certain kinds of fur, was conferred on certain men of rank in the provinces. Holland considers it to be the old participle of "pello," and translates the passage "banished out of the country and nation where his father was born."

CHAP. 51.—AT WHAT PERIOD SILVER WAS FIRST USED AS AN ORNAMENT FOR COUCHES.

For this long time past, however, it has been the fashion to plate the couches of our women, as well as some of our banquetting-couches,[43] entirely with silver. Carvilius Pollio,[44] a Roman of equestrian rank, was the first, it is said, to adorn these last with silver; not, I mean, to plate them all over, nor yet to make them after the Delian pattern; the Punic[45] fashion being the one he adopted. It was after this last pattern too, that he had them ornamented with gold as well: and it was not long after his time that silver couches came into fashion, in imitation of the couches of Delos. All this extravagance, however, was fully expiated by the civil wars of Sulla.

CHAP. 52.—AT WHAT PERIOD SILVER CHARGERS OF ENORMOUS SIZE WERE FIRST MADE. WHEN SILVER WAS FIRST USED AS A MATERIAL FOR SIDEBOARDS. WHEN THE SIDEBOARDS CALLED TYMPANA WERE FIRST INTRODUCED.

In fact, it was but very shortly before that period that these couches were invented, as well as chargers[46] of silver, one hundred pounds in weight: of which last, it is a well-known fact, that there were then upwards of one hundred and fifty in Rome, and that many persons were proscribed through the devices of others who were desirous to gain possession thereof. Well may our Annals be put to the blush for having to impute those civil wars to the existence of such vices as these!

Our own age, however, has waxed even stronger in this respect. In the reign of Claudius, his slave Drusillanus, surnamed Rotundus, who acted as his steward[47] in Nearer Spain, possessed a silver charger weighing five hundred pounds, for the manufacture of which a workshop had had to be expressly built. This charger was accompanied also by eight other dishes, each two hundred and fifty pounds in weight. How many of his fellow-slaves,[48] pray, would it have taken to introduce these dishes, or who[49] were to be the guests served therefrom?

[43] "Triclinia." The couches on which they reclined when at table.

[44] See B. ix. c. 13.

[45] This pattern, whatever it may have been, is also spoken of by Cicero, pro Murenâ, and by Valerius Maximus, B. vii. c. 1.

[46] "Lances." [47] "Dispensator." [48] "Conservi"—said in keen irony.

[49] Giants, at least, one would think.

Cornelius Nepos says that before the victory gained[50] by Sylla, there were but two banquetting couches adorned with silver at Rome, and that in his own recollection, silver was first used for adorning sideboards. Fenestella, who died at the end of the reign of Tiberius Cæsar, informs us that at that period sideboards, inlaid even with tortoiseshell,[50*] had come into fashion; whereas, a little before his time, they had been made of solid wood, of a round shape, and not much larger than our tables. He says, however, that when he was quite a boy, they had begun to make the sideboards square, and of different[51] pieces of wood, or else veneered with maple or citrus:[52] and that at a later period the fashion was introduced of overlaying the corners and the seams at the joinings with silver. The name given to them in his youth, he says, was "tympana;"[53] and it was at this period, too, that the chargers which had been known as "magides" by the ancients, first received the name of "lances," from their resemblance[54] to the scales of a balance.

### CHAP. 53.—THE ENORMOUS PRICE OF SILVER PLATE.

It is not, however, only for vast quantities of plate that there is such a rage among mankind, but even more so, if possible, for the plate of peculiar artists: and this too, to the exculpation of our own age, has long been the case. C. Gracchus possessed some silver dolphins, for which he paid five thousand sesterces per pound. Lucius Crassus, the orator, paid for two goblets chased by the hand of the artist Mentor,[55] one hundred thousand sesterces: but he confessed that for very shame he never dared use them, as also that he had other articles of plate in his possession, for which he had paid at the rate of six thousand sesterces per pound. It was the conquest of Asia[56] that first introduced luxury into Italy; for we

[50] Over the party of Marius. [50*] See B. ix. c. 13.

[51] "Compacta;" probably meaning inlaid like Mosaic.

[52] See B. xiii. c. 29, B. xv. c. 7, and B. xvi. cc. 26, 27, 84.

[53] Meaning, "drum sideboards," or "tambour sideboards," their shape, probably, being like that of our dumb waiters.

[54] The name given to which was "lanx," plural "lances."

[55] His age and country are uncertain. We learn, however, from Chapter 55 of this Book, that he flourished before the burning of the Temple of Diana at Ephesus, B.C. 356. He is frequently mentioned in the classical writers. See also B. vii. c. 39.

[56] He includes, probably, under this name both Asia Minor and Syria. See a similar passage in Livy, B. xxxix.

find that Lucius Scipio, in his triumphal procession, exhibited one thousand four hundred pounds' weight of chased silver, with golden vessels, the weight of which amounted to one thousand five hundred pounds. This[57] took place in the year from the foundation of the City, 565. But that which inflicted a still more severe blow upon the Roman morals, was the legacy of Asia,[58] which King Attalus[59] left to the state at his decease, a legacy which was even more disadvantageous than the victory of Scipio,[60] in its results. For, upon this occasion, all scruple was entirely removed, by the eagerness which existed at Rome, for making purchases at the auction of the king's effects. This took place in the year of the City, 622, the people having learned, during the fifty-seven years that had intervened, not only to admire, but to covet even, the opulence of foreign nations. The tastes of the Roman people had received, too, an immense impulse from the conquest of Achaia,[61] which, during this interval, in the year of the City, 608, that nothing might be wanting, had introduced both statues and pictures. The same epoch, too, that saw the birth of luxury, witnessed the downfall of Carthage; so that, by a fatal coincidence, the Roman people, at the same moment, both acquired a taste for vice and obtained a license for gratifying it.

Some, too, of the ancients sought to recommend themselves by this love of excess; for Caius Marius, after his victory over the Cimbri, drank from a cantharus,[62] it is said, in imitation of Father Liber;[63] Marius, that ploughman[64] of Arpinum, a general who had risen from the ranks![65]

### CHAP. 54. (12.)—STATUES OF SILVER.

It is generally believed, but erroneously, that silver was

[57] This passage is rejected by Sillig as a needless interpolation.
[58] Asia Minor.
[59] King of Pergamus.
[60] Over King Antiochus.
[61] He alludes to the destruction of Corinth, by L. Mummius Achaïcus.
[62] A drinking cup with handles, sacred to Bacchus. See B. xxxiv. c. 25.
[63] Bacchus.
[64] In allusion to the plebeian origin of C. Marius, who was born at the village of Cereatæ, near Arpinum. It is more than probable that the story that he had worked as a common peasant for wages, was an invention of the faction of Sylla.
[65] "Ille arator Arpinas, et manipularis imperator."

first employed for making statues of the deified Emperor Augustus, at a period when adulation was all the fashion: for I find it stated, that in the triumph celebrated by Pompeius Magnus there was a silver statue exhibited of Pharnaces, the first[66] king of Pontus, as also one of Mithridates Eupator,[67] besides chariots of gold and silver.

Silver, too, has in some instances even supplanted gold; for the luxurious tastes of the female plebeians having gone so far as to adopt the use of shoe-buckles of gold,[68] it is considered old-fashioned to wear them made of that metal.[69] I myself, too, have seen Arellius Fuscus[70]—the person whose name was erased from the equestrian order on a singularly calumnious charge,[71] when his school was so thronged by our youth, attracted thither by his celebrity—wearing rings made of silver. But of what use is it to collect all these instances, when our very soldiers, holding ivory even in contempt, have the hilts of their swords made of chased silver? when, too, their scabbards are heard to jingle with their silver chains, and their belts with the plates of silver with which they are inlaid?

At the present day, too, the continence of our very pages is secured by the aid of silver:[72] our women, when bathing, quite despise any sitting-bath that is not made of silver: while for serving up food at table, as well as for the most unseemly purposes, the same metal must be equally employed! Would that Fabricius could behold these instances of luxuriousness, the baths of our women—bathing as they do in

[66] Meaning the first king of that name. He was son of Mithridates IV., king of Pontus.

[67] Appian says that there "was a gold statue of this Mithridates, exhibited in the triumph of Pompey, eight cubits in height." Plutarch speaks of another statue of the same king, exhibited by Lucullus, six feet in height.

[68] "Compedes." See Chapter 12 of this Book.

[69] The translation of this passage is somewhat doubtful. We will, therefore, subjoin that of Holland, who adopts the other version. "As we may see by our proud and sumptuous dames, that are but commoners and artizans' wives, who are forced to make themselves carquans and such ornaments for their shoes, of silver, because the rigour of the statute provided in that case will not permit them to weare the same of gold."

[70] A rhetorician who taught at Rome in the reign of Augustus. The poet Ovid was one of his pupils. His rival in teaching declamation was Porcius Latro.

[71] Of an improper intimacy with his pupils.

[72] Rings of silver being passed through the prepuce. This practice is described by Celsus, B. vii. c. 25.

company with the men—paved with silver to such an extent that there is not room left for the sole of the foot even! Fabricius, I say, who would allow of no general of an army having any other plate than a patera and a salt-cellar of silver. —Oh that he could see how that the rewards of valour in our day are either composed of these objects of luxury, or else are broken up to make them![73] Alas for the morals of our age! Fabricius puts us to the blush.

### CHAP. 55.—THE MOST REMARKABLE WORKS IN SILVER, AND THE NAMES OF THE MOST FAMOUS ARTISTS IN SILVER.

It is a remarkable fact that the art of chasing gold should have conferred no celebrity upon any person, while that of embossing silver has rendered many illustrious. The greatest renown, however, has been acquired by Mentor, of whom mention has been made already.[74] Four pairs [of vases] were all that were ever[75] made by him; and at the present day, not one of these, it is said, is any longer in existence, owing to the conflagrations of the Temple of Diana at Ephesus and of that in the Capitol.[76] Varro informs us in his writings that he also was in possession of a bronze statue, the work of this artist. Next to Mentor, the most admired artists were Acra-

[73] "Videret hinc dona fortium fieri, aut in hæc frangi."

[74] In B. vii. c. 39, and in Chapter 53 of this Book.

[75] "Quatuor paria ab eo omnino facta sunt." Sillig, in his *Dictionary of Ancient Artists*, finds a difficulty in this passage. "The term 'omnino' seems to imply that the productions in question, all of which perished, were the *only* works executed by this artist; but we find several passages of ancient writers, in which vases, &c. engraved by Mentor, are mentioned as extant. Thus, then, we must conclude, either that the term 'omnino' should be understood in the sense of 'chiefly,' 'pre-eminently,' or that the individuals claiming to possess works of Mentor, were themselves misinformed, or endeavoured to deceive others." If, however, we look at the word "paria" in a strictly technical sense, the difficulty will probably be removed. Pliny's meaning seems to be that Mentor made four *pairs*, and no more, of some peculiar kind of vessel probably, and that all these pairs were now lost. He does not say that Mentor did not make other works of art, in *single* pieces. Thiersch, *Act. Acad. Monac.* v. p. 128, expresses an opinion that the word "omnino" is a corruption, and that in it lies concealed the name of the kind of plate that is meant.

[76] See B. vii. c. 39.

gas,[77] Boëthus,[78] and Mys.[79] Works of all these artists are still extant in the Isle of Rhodes; of Boëthus, in the Temple of Minerva, at Lindus; of Acragas, in the Temple of Father Liber, at Rhodes, consisting of cups engraved with figures in relief of Centaurs and Bacchantes; and of Mys, in the same temple, figures of Sileni and Cupids. Representations also of the chase by Acragas on drinking-cups were held in high estimation.

Next to these in repute comes Calamis.[80] Antipater[81] too, it has been said, laid, rather than engraved,[82] a Sleeping Satyr upon a drinking-bowl.[83] Next to these come Stratonicus[84] of Cyzicus, and Tauriscus:[85] Ariston[86] also, and Eunicus,[87] of Mytilene are highly praised; Hecatæus[88] also, and, about the age of Pompeius Magnus, Pasiteles,[89] Posidonius[90] of Ephesus, Hedystratides[91] who engraved battle-scenes and armed warriors, and Zopyrus,[92] who represented the Court of the Areopa-

[77] His age and country are unknown.

[78] From Pausanias we learn that he was a statuary and engraver on plate, born at Carthage; but Raoul Rochette thinks that he was a native of Chalcedon. He is mentioned also by Cicero, In Verrem, 4. 14, and in the Culex, l. 66, ascribed by some to Virgil.

[79] His country is uncertain. According to the statements of Pausanias, B. i. c. 28, he must have been a contemporary of Phidias, about Olymp. 84, B.C. 444. He is mentioned also by Propertius, Martial, and Statius.

[80] His birth-place is unknown, but he probably lived about the time of Phidias, and we learn from Pausanias that he was living when the plague ceased at Athens, in B.C. 429. He is mentioned also by Cicero, Ovid, Quintilian, Lucian, and Dionysius of Halicarnassus.

[81] Nothing further is known of this artist.

[82] "Collocavisse verius quam cælasse." [83] "Phiala."

[84] He lived probably about Olymp. 126; but his country is unknown. He is mentioned by Athenæus. See also B. xxxiv. c. 19.

[85] Nothing whatever is known of him, unless indeed he is identical with the Tauriscus mentioned in B. xxxvi. c. 5.

[86] Nothing is known of his age or country. He is also mentioned in B. xxxiv. c. 19.

[87] His age and country are unknown. See B. xxxiv. c. 19.

[88] Nothing further is known of him. See B. xxxiv. c. 19.

[89] See the end of this Book.

[90] Beyond the mention made of him in B. xxxiv. c. 19, no particulars relative to him are known.

[91] Other readings of this name are "Lædus Stratiotes," "Ledis Thracides," "Hieris Thracides," and "Lidistratices." The Bamberg MS. has "Hedys Trachides." Salmasius, Hardouin, and Sillig propose "Leostratides," and Thiersch "Lysistratides."

[92] Nothing further is known of him.

gus and the trial of Orestes,[93] upon two cups valued at twelve thousand sesterces. There was Pytheas[94] also, a work of whose sold at the rate of ten thousand denarii for two ounces: it was a drinking-bowl, the figures on which represented Ulysses and Diomedes stealing the Palladium.[95] The same artist engraved also, upon some small drinking-vessels, kitchen scenes,[96] known as "magiriscia;"[97] of such remarkably fine workmanship and so liable to injury, that it was quite impossible to take copies[98] of them. Teucer too, the inlayer,[99] enjoyed a great reputation.

All at once, however, this art became so lost in point of excellence, that at the present day ancient specimens are the only ones at all valued; and only those pieces of plate are held in esteem the designs on which are so much worn that the figures cannot be distinguished.

Silver becomes tainted by the contact of mineral waters, and of the salt exhalations from them, as in the interior of Spain, for instance.

### CHAP. 56.—SIL: THE PERSONS WHO FIRST USED IT IN PAINTING, AND THE METHOD THEY ADOPTED.

In the mines of gold and silver there are some other pigments also found, sil[1] and cæruleum. Sil is, properly speaking, a sort of slime.[2] The best kind is that known as Attic sil; the price of which is two denarii per pound. The next best kind is the marbled[3] sil, the price of which is half that of the Attic kind. A third sort is the compressed sil, known to some persons as Scyric sil, it coming from the Isle of Scyros. Then, too, there is the sil of Achaia, which painters make use of for shadow-painting, and the price of which is two sesterces per pound. At a price of two asses less per pound, is sold the

[93] For the murder of his mother Clytæmnestra.
[94] Nothing is known of this artist.
[95] From Troy.
[96] "Coquos," literally, "cooks."
[97] "Cooks in miniature."
[98] By the process of moulding, probably.
[99] "Crustarius." Of this artist nothing further is known.

[1] Yellow or brown Ochre, probably. Ajasson thinks that under this name may be included peroxide of iron, hydroxide of iron in a stalactitic and mamillary form, and compact peroxide of iron, imparting a colour to argillaceous earth.

[2] "Scaly and ochrey brown iron ore are decomposed earthy varieties, often soft like chalk; yellow ochre is here included."—Dana, Syst. Mineral, p. 436.

[3] "Marmorosum."

clear[4] sil, which comes from Gaul. This last kind, as well as the Attic sil, is used for painting strong lights: but the marbled sil only is employed for colouring compartitions,[5] the marble in it offering a resistance to the natural acridity of the lime. This last kind is extracted also from some mountains twenty miles distant from the City. When thus extracted, it is submitted to the action of fire; in which form it is adulterated by some, and sold for compressed sil. That it has been burnt, however, and adulterated, may be very easily detected by its acridity, and the fact that it very soon crumbles into dust.

Polygnotus[6] and Micon[7] were the first to employ sil in painting, but that of Attica solely. The succeeding age used this last kind for strong lights only, and employed the Scyric and Lydian kinds for shadow painting. The Lydian sil used to be bought at Sardes; but at the present day we hear nothing of it.

### CHAP. 57. (13.)—CÆRULEUM.

Cæruleum[8] is a kind of sand. In former times there were three kinds of it; the Egyptian, which was the most esteemed of all; the Scythian, which is easily dissolved, and which produces four colours when pounded, one of a lighter blue and one of a darker blue, one of a thicker consistency and one comparatively thin;[9] and the Cyprian, which is now preferred as a colour to the preceding. Since then, the kinds imported from Puteoli and Spain have been added to the list, this sand having of late been prepared there. Every kind,[10]

[4] "Lucidum." [5] "Abacos." Small compartments or partitions in a square form on the walls of rooms.

[6] See B. vii. c. 57, where he is called an Athenian, whereas he was a native of Thasos. He was one of the most eminent painters of antiquity, and flourished in the age of Pericles. See a further account of him in B. xxxv. c. 35.

[7] Son of Phanochus, and contemporary of Polygnotus. See B. xxxv. c. 25, where it is stated that in conjunction with Polygnotus, he either invented some new colours, or employed them in his paintings on a better plan than that previously adopted.

[8] "It is possible that the 'cæruleum' of the ancients may in some cases have been real ultramarine, but properly and in general, it was only copper ochre."—Beckmann's Hist. Inv. Vol. I. p. 472. *Bohn's Edition.* Delafosse identifies it with blue carbonate and hydrocarbonate of copper, one of the two azurites.

[9] "Candidiorem nigrioremve, et crassiorem tenuioremve."

[10] Beckmann thinks that Pliny is here alluding to an artificial kind of

however, is submitted to a dyeing process, it being boiled with a plant[11] used particularly for this purpose,[12] and imbibing its juices. In other respects, the mode of preparing it is similar to that of chrysocolla. From cæruleum, too, is prepared the substance known as "lomentum,"[13] it being washed and ground for the purpose. Lomentum is of a paler tint than cæruleum; the price of it is ten denarii per pound, and that of cæruleum but eight. Cæruleum is used upon a surface of clay, for upon lime it will not hold. A more recent invention is the Vestorian[14] cæruleum, so called from the person who first manufactured it: it is prepared from the finer parts of Egyptian cæruleum, and the price of it is eleven denarii per pound. That of Puteoli is used in a similar manner,[15] as also for windows:[16] it is known as "cylon."

"cæruleum." "Pliny clearly adds to it an artificial colour, which in my opinion was made in the same manner as our lake; for he speaks of an earth, which when boiled with plants, acquired their blue colour."—Hist. Inv., Vol. II. p. 480.

[11] Supposed by Hardouin to have been "glastum" or "woad," the Isatis tinctoria of Linnæus, mentioned in B. xxii. c. 2.

[12] "In suâ coquitur herbâ."

[13] A blue powder; see Chapter 27 of this Book. Beckmann has the following remarks on this and the preceding lines: "The well-known passage of Pliny in which Lehmann thinks he can with certainty discover cobalt, is so singular a medley that nothing to be depended on can be gathered from it. The author, it is true, where he treats of mineral pigments, seems to speak of a blue sand which produced different shades of blue paint, according as it was pounded coarser or finer. The palest powder was called lomentum, and this Lehmann considers as our powder-blue. I am, however, fully convinced that the *cyanus* of Theophrastus, the *cæruleum* of Pliny, and the *chrysocolla* (see Chapter 26), were the blue copper earth already mentioned, which may have been mixed and blended together."—Hist. Inv. Vol. I. pp. 480, 481. *Bohn's Edition.*

[14] According to Vitruvius, B. viii c. 11, the manufactory of Vestorius was at Puteoli, now Pozzuoli. This was probably the same C. Vestorius who was also a money-lender and a friend of Atticus, and with whom Cicero had monetary transactions. He is mentioned as "Vestorium meum," in the Epistles of Cicero to Atticus.

[15] For colouring surfaces of clay or cretaceous earth. This kind was also manufactured by Vesturius, most probably.

[16] "Idem et Puteolani usus, præterque ad fenestras." "The expression here, *usus ad fenestras*, has been misapplied by Lehmann, as a strong proof of his assertion; for he explained it as if Pliny had said that a blue pigment was used for painting window-frames; but glass windows were at that time unknown. I suspect that Pliny meant to say only that one kind of paint could not be employed near openings which afforded a

It is not so long since that indicum[17] was first imported to Rome, the price being seventeen[18] denarii per pound. Painters make use of it for incisures, or in other words, the division of shadows from light. There is also a lomentum of very inferior quality, known to us as "ground" lomentum, and valued at only five asses per pound.

The mode of testing the genuineness of cæruleum, is to see whether it emits a flame, on being laid upon burning coals. One method of adulterating it is to boil dried violets in water, and then to strain the liquor through linen into Eretrian[20] clay.

### CHAP. 58.—TWO REMEDIES DERIVED FROM CÆRULEUM.

Cæruleum has the medicinal property of acting as a detergent upon ulcers. Hence it is, that it is used as an ingredient in plasters, as also in cauteries. As to sil, it is pounded with the greatest difficulty: viewed as a medicament, it is slightly mordent and astringent, and fills up the cavities left by ulcers. To make it the more serviceable, it is burnt in earthen vessels.

The prices of things, which I have in different places annexed, vary, I am well aware, according to the locality, and experience a change almost every year: variations dependent upon the opportunities afforded for navigation, and the terms upon which the merchant may have purchased the article. It may so happen, too, that some wealthy dealer has engrossed the market, and so enhanced the price: for I am by no means forgetful of the case of Demetrius, who in the reign of the Emperor Nero was accused before the consuls by the whole community of the Seplasia.[21] Still, however, I have thought

passage to the light, as it soon decayed and lost its colour. This would have been the case in particular with *lake*, in which there was a mixture of vegetable particles."—Beckmann, Hist. Inv. Vol. I. p. 480.

[17] "Indian" pigment. Probably our "indigo." It is again mentioned, and at greater length, in B. xxxv. c. 27. See also Beckmann, Hist Inv. Vol. II. pp. 259, 267. *Bohn's Edition.*

[18] This is probably a more correct reading than "seven."

[20] See B. xxxv. c. 19. Vitruvius, B. vii. c. 14, describes an exactly similar method adopted by dyers for imitating the colour of Attic sil, or ochre, mentioned in Chapter 56.

[21] A quarter in the city of Capua, inhabited by druggists and perfumers; see B. xvi. c. 18, and B. xxxiv. c. 25.

it necessary to annex the usual price of each commodity at Rome, in order to give some idea of their relative values.

SUMMARY.—Remedies, narratives, and observations, one thousand one hundred and twenty-five.

ROMAN AUTHORS QUOTED.—Domitianus Cæsar,[22] Junius Gracchanus,[23] L. Piso,[24] Verrius,[25] M. Varro,[26] Corvinus,[27] Atticus Pomponius,[28] Calvus Licinius,[29] Cornelius Nepos,[30] Mucianus,[31] Bocchus,[32] Fetialis,[33] Fenestella,[34] Valerius Maximus,[35] Julius Bassus[36] who wrote on Medicine in Greek, Sextius Niger[37] who did the same.

FOREIGN AUTHORS QUOTED.—Theophrastus,[38] Democritus,[39]

[22] In some MSS. the reading here is "Domitius," and in others the name is omitted altogether. We learn from the writings of Suetonius, that the Emperor Domitian devoted himself to literary pursuits in his younger days, and Quintilian and the younger Pliny speak of his poetical productions as equal to those of the greatest masters. Sillig expresses an opinion that Pliny may possibly have borrowed something from his works, and inserted his name, with a view of pleasing the young prince and his father, the Emperor Vespasian.

[23] He is quoted in Chapter 9 of this Book, where it appears that he took his cognomen on account of his friendship for C. Gracchus. He wrote a work, "De Potestatibus," which gave an account of the Roman magistrates from the time of the kings. A few fragments of this work, which was highly esteemed by the ancients, are all that remain.

[24] See end of B. ii. [25] See end of B. iii. [26] See end of B. ii.

[27] Valerius Messala Corvinus. See end of B. ix. [28] See end of B. vii.

[29] Calvus Licinius Macer was the son of C. Licinius Macer, a person of prætorian rank, who, on being impeached of extortion by Cicero, committed suicide. We learn from our author, B. xxxiv. c. 50, that in his youth he devoted himself to study with the greatest zeal, and applied himself with singular energy to intellectual pursuits. His constitution, however, was early exhausted, and he died in his 35th or 36th year, leaving behind him twenty-one orations. We learn from Cicero and Quintilian that his compositions were carefully moulded after the models of the Attic school, but were deficient in ease and freshness. As a poet he was the author of many short pieces, equally remarkable for their looseness and elegance. He wrote also some severe lampoons on Pompey and Cæsar, and their respective partisans. Ovid and Horace, besides several of the prose writers, make mention of him. [30] See end of B. ii.

[31] See end of B. ii. [32] Cornelius Bocchus. See end of B. xvi.

[33] Annius or Annæus Fetialis. See end of B. xvi.

[34] See end of B. viii. [35] See end of B. vii. [36] See end of B. xx.

[37] See end of B. xii. [38] See end of B. iii. [39] See end of B. ii.

Juba,[40] Timæus[41] the historian, who wrote on Metallic Medicines, Heraclides,[42] Andreas,[43] Diagoras,[44] Botrys,[45] Archidemus,[46] Dionysius,[47] Aristogenes,[48] Democles,[49] Mnesides,[50] Attalus[51] the physician, Xenocrates[52] the son of Zeno, Theomnestus,[53] Nymphodorus,[54] Iollas,[55] Apollodorus,[56] Pasiteles[57] who wrote on Wonderful Works, Antigonus[58] who wrote on the Toreutic art, Menæchmus[59] who did the same, Xenocrates[60]

[40] See end of B. v.

[41] The person mentioned in Chapter 13 of this Book, is probably different from those of the same name mentioned at the end of Books ii. and iv. If so, no further particulars are known of him.

[42] It seems impossible to say which of the physicians of this name is here alluded to. See end of Books iv. and xii. [43] See end of B. xx.

[44] See end of B. xii. [45] See end of B. xiii. [46] See end of B. xii.

[47] See end of B. xii.; and for Sallustius Dionysius, see end of B. xxxi.

[48] See end of B. xxix. [49] See end of B. xii. [50] See end of B. xii.

[51] As King Attalus was very skilful in medicine, Hardouin is of opinion that he is the person here meant; see end of B. viii.

[52] A different person, most probably, from the writer of Pliny's age, mentioned in B. xxxvii. c. 2. The Xenocrates here mentioned is probably the same person that is spoken of in B. xxxv. c. 36, a statuary of the school of Lysippus, and the pupil either of Tisicrates or of Euthycrates, who flourished about B.C. 260.

[53] There were two artists of this name, prior to the time of Pliny; a sculptor, mentioned by him in B. xxxiv. c. 19, and a painter, contemporary with Apelles, mentioned in B. xxxv. c. 36. It is impossible to say which of them, if either, is here meant.

[54] See end of B. iii. [55] See end of B. xii.

[56] It is impossible to say which writer of this name is here meant. See end of Books iv., viii., xi., and xx.

[57] A statuary, sculptor, and chaser in silver, who flourished at Rome about B.C. 60. He was a native of Magna Græcia, in the south of Italy. He is not only mentioned in Chapter 55 of the present Book, but also in B. xxxv. c. 45, as an artist of the highest distinction. His narrow escape from a panther, while copying from nature, is mentioned in B. xxxvi. c. 4. His five Books on the most celebrated works of sculpture and chasing were looked upon as a high authority in art. He was also the head of a school of artists.

[58] A writer on painting of this name is mentioned by Diogenes Laertius, B. vii. c. 12. He is probably the same as the person here mentioned, and identical with the Greek sculptor mentioned by Pliny in B. xxxiv. c. 19, who probably flourished about 240 B.C. The Toreutic Art, "Toreutice," was the art of making raised work in silver or bronze, either by graving or casting: but the exact meaning of the word is somewhat uncertain.

[59] Menæchmus of Sicyon, probably; see end of B. iv., also B. xxxiv. c. 19.

[60] If he is really a different person from the Xenocrates mentioned above, nothing is known of him.

who did the same, Duris[61] who did the same, Menander[62] who wrote on Toreutics, Heliodorus[63] who wrote on the Votive Offerings of the Athenians, Metrodorus[64] of Scepsis.

[61] See end of B. vii.

[62] Possibly one of the persons mentioned at the end of Books viii., xix., and xxxi. If not, nothing whatever is known of him.

[63] An Athenian writer, surnamed "Periegetes." The work here mentioned, is alluded to by other writers under different names. From a passage in Athenæus, he is supposed to have lived after the time of Antiochus Epiphanes.

[64] See end of B. iii.

# BOOK XXXIV

## THE NATURAL HISTORY OF METALS.

### CHAP. 1. (1.)—THE ORES OF BRASS.[1]

WE must, in the next place, give an account of the ores of brass,[2] a metal which, in respect of utility, is next in value; indeed the Corinthian brass comes before silver, not to say almost before gold itself. It is also, as I have stated above,[3] the standard of monetary value;[4] hence the terms "æra militum," "tribuni ærarii," "ærarium," "obærati," and "ære diruti."[5] I have already mentioned for what length of time the Roman people employed no coin except brass;[6] and there is

[1] The present Book is translated by the late Dr. Bostock, the translation being corrected by the readings of the Bamberg MS., which do not appear to have come under his notice. Some Notes by Dr. Bostock will be also found at the commencement of Books 33 and 35; they are distinguished by the initial B.

[2] "Æris Metalla." The word "Æs" does not entirely correspond to our word "brass;" the brass of the moderns being a compound of copper and zinc, while the "Æs" of the ancients was mostly composed of copper and tin, and therefore, would be more correctly designated by the word "bronze." But this last term is now so generally appropriated to works of art, that it would seem preferable to employ in most cases the more general terms "copper" or "brass." For an excellent account of the "Æs" of the ancients, see Smith's Dict. Antiq. "Æs."—B. Mr. Westmacott, in the above-mentioned article, says that the ancient "Æs" has been found, upon analysis, to contain *no* zinc, but in nearly every instance to be a mixture of copper and tin, like our bronze. Beckmann says, on the other hand, that the mixture of zinc and copper now called "brass," first discovered by ores, abundant in zinc, *was certainly known to the ancients.* "In the course of time, an ore, *which must have been calamine*, was added to copper while melting, to give it a yellow colour." Hist. Inv. Vol. II. pp. 32, 33. *Bohn's Edition.* There can be little doubt that the native *Cadmia* of Chapter 22 of this Book was our Calamine, hydrosilicate of zinc, or carbonate of zinc, or else copper ore impregnated with calamine.

[3] In B. xxxiii. c. 13.

[4] "Stipis auctoritas." The standard in money payments.

[5] These terms must have come into use when brass, "æs," was the ordinary medium of circulation.—B. Their meaning is, "soldiers' pay," "tribunes of the treasury," the "public treasury," "made bondmen for debt," and "mulcted of their pay."

[6] In B. xxxiii. c. 13.—B.

another ancient fact which proves that the esteem in which it was held was of equal antiquity with that of the City itself, the circumstance that the third associated body[7] which Numa established, was that of the braziers.

### CHAP. 2.—THE DIFFERENT KINDS OF COPPER.

The ore is extracted in the mode that has been described above,[8] and is then purified by fusion. The metal is also obtained from a coppery stone called "cadmia."[9] The most highly esteemed copper is procured from beyond seas; it was formerly obtained in Campania also, and at present is found in the country of the Bergomates,[10] at the extremity of Italy. It is said to have been lately discovered also in the province of Germany.

(2.) In Cyprus, where copper was first discovered, it is also procured from another stone, which is called "chalcitis."[11] This, however, was afterwards considered of little value, a better kind having been found in other regions, especially that called "aurichalcum,"[12] which was long in high request, on account of

[7] "Collegium." The colleges of the priests and of the augurs being the first two associated bodies.—B.

[8] In B. xxxiii. c. 31, where we have an account of the ores of silver.—B.

[9] Pliny again refers to this mineral in the 22d Chapter. We have no means of ascertaining, with certainty, what is the substance to which this name was applied by the ancients. The ores of copper are very numerous, and of various chemical constitutions: the most abundant, and those most commonly employed in the production of the pure metal, are the sulphurets, more especially what is termed copper pyrites, and the oxides. It has been supposed, by some commentators, that the Cadmia of the ancients was Calamine, which is an ore of zinc; but we may be confident that the *Æs* of the ancients could not be produced from this substance, because, as has been stated above, the *Æs* contains no zinc. I must, however, observe that the contrary opinion is maintained by M. Delafosse.—B. See Note 2 above.

[10] The inhabitants of Bergamum, the modern Bergamo.—B. See B. iii. c. 21.

[11] Aristotle gives the same account of the copper ore of Cyprus. Chalcitis is also spoken of by Dioscorides, as an ore of copper.—B. See further as to "Chalcitis," in Chapter 29 of this Book.

[12] There has been much discussion respecting the nature of this substance, and the derivation of the word. Hardouin conceives it probable that it was originally written "orichalcum," *i. e.* "mountain brass" or "copper."—B. Ajasson considers it to be native brass, a mixture of copper and zinc. In the later writers it signifies artificial brass. The exact composition of this metal is still unknown, but there is little doubt that Hardouin is right in his supposition as to the origin of the name.

its excellent quality; but none of it has been found for this long time, the earth having been quite exhausted. The kind which was next in value was the Sallustian,[13] procured from the Alpine district of the Centrones;[14] but this did not last long, and was succeeded by the Livian, in Gaul. They both took their names from the owners of the mines; the former a friend of the Emperor Augustus, the latter that emperor's wife.[15] They soon failed, however, and in the Livian even there is now found but a very small quantity of ore. That which is at present held in the highest estimation is the Marian, likewise known as the Corduban:[16] next to the Livian, this kind most readily absorbs cadmia, and becomes almost as excellent as aurichalcum[17] for making sesterces and double asses,[18] the Cyprian copper being thought good enough for the as. Thus much concerning the natural qualities of this metal.

## CHAP. 3.—THE CORINTHIAN BRASS.

The other kinds are made artificially, all of which will be described in the appropriate places, the more celebrated kinds first coming under our notice. Formerly a mixture was made of copper fused with gold and silver, and the workmanship in this metal was considered even more valuable than the material itself; but, at the present day, it is difficult to say whether the workmanship in it, or the material, is the worst. Indeed, it is wonderful, that while the value of these works[19]

[13] Possibly so called from Sallustius Crispus, the historian, who was one of the secretaries of Augustus.

[14] There is some doubt respecting the locality of these people; they are enumerated by Pliny among the inhabitants of the mountainous districts of Savoy, B. iii. c. 24, and are referred to by Ptolemy.—B.

[15] Livia.

[16] It was named "Marian," after the celebrated Marius, and "Corduban," from the place whence it was procured; probably the mountains near Corduba, in Spain, well known as the birth-place of the two Senecas and of Lucan.—B. See B. iii. c. 3, and B. xix. c. 43.

[17] No light is thrown upon the nature either of Cadmia or Aurichalcum by this statement; we only learn from it that different compounds, or substances possessing different physical properties, went under the common appellation of *Æs*, and were, each of them, employed in the formation of coins.—B.

[18] "Dupondiariis." The "as," it must be remembered, *originally* weighed one pound. See B. xxxiii. c. 13, and the Introduction to Vol. III.

[19] He alludes to the *ancient* works of art in this compound metal.

has so infinitely increased, the reputation of the art itself[20] is nearly extinct. But it would appear, that in this, as in every thing else, what was formerly done for the sake of reputation, is now undertaken for the mere purpose of gain. For whereas this art was ascribed to the gods[21] themselves, and men of rank in all countries endeavoured to acquire fame by the practice of it, we have now so entirely lost the method of making this valuable compound by fusion, that, for this long time past, not even chance itself has assumed, in this department, the privilege which formerly belonged to art.[22]

Next after the above compound, so celebrated in antiquity, the Corinthian metal has been the most highly esteemed. This was a compound produced by accident, when Corinth was burnt at the time of its capture.[23] There has been a wonderful mania with many for gaining possession of this metal. It is even said, that Verres, whom M. Cicero caused to be condemned, was proscribed by Antonius, along with Cicero, for no other reason than his refusal to give up some specimens of Corinthian metal, which were in his possession. But most of these people seem to me to make a pretence of their discernment in reference to this metal, rather for the purpose of distinguishing themselves from the multitude, than from any real knowledge which they possess; and this I will briefly show.

Corinth was captured in the third year of the 158th Olympiad, being the year of the City, 608,[24] some ages after the period when those artists flourished, who produced all the specimens of what these persons now call Corinthian metal. It is in order, therefore, to refute this opinion, that I shall state the age when these different artists lived; for, if we reckon according to the above-mentioned era of the Olympiads, it will be easy to compare their dates with the corresponding years of our City. The only genuine Corinthian vessels, then,

[20] The art of making compound metals.

[21] Vulcan, namely.

[22] No one has accidentally stumbled upon the art of making this composite metal.

[23] We have an account of the destruction of Corinth, and the accidental formation of this compound, in Florus, B. ii. c. 16. Although this account was generally received by the ancients, we may venture to assert, that it cannot be correct; we cannot conceive the possibility of such a fusion taking place during the destruction of the city, or of the complete union of the components, in the mode in which they have been found to exist.—B.

[24] B.C. 146.—B.

are those which these men of taste metamorphose, sometimes into dishes, sometimes into lamps, or even into washing-basins,[25] without any regard to decency. They are of three kinds; the white variety, approaching very nearly to the splendour of silver, and in which that metal forms a large proportion of the compound; a second kind, in which the yellow colour of gold predominates; and a third, in which all the metals are mixed in equal proportions. Besides these, there is another mixture, the composition of which it is impossible to describe, for although it has been formed into images and statues by the hand of man, it is chance that rules in the formation of the compound. This last is highly prized for its colour, which approaches to that of liver, and it is on this account that it is called "hepatizon:"[26] it is far inferior to the Corinthian metal, but much superior to the Æginetan and Delian, which long held the first rank.

### CHAP 4.—THE DELIAN BRASS.

The Delian brass was the first[27] that became famous, all the world coming to Delos to purchase it; and hence the attention paid to the manufacture of it. It was in this island that brass first obtained celebrity for the manufacture of the feet and supports of dining-couches. After some time it came to be employed for the statues of the gods, and the effigies of men and other animated beings.

### CHAP. 5.—THE ÆGINETAN BRASS.

The next most esteemed brass was the Æginetan; the island itself being rendered famous for its brass—not indeed that the metal was produced there, but because the annealing of the Æginetan manufactories was so excellent. A brazen Ox, which was taken from this island, now stands in the Forum Boarium[28] at Rome. This is a specimen of the Æginetan metal, as the Jupiter in the Temple of Jupiter

[25] "Trulleos." In an epigram of Martial, B. ix. Ep. 97, the word "trulla" signifies a chamber-pot. [26] From the Greek ἧπαρ, "the liver."

[27] The Delian brass is mentioned by Cicero, in his oration "Pro Roscio Amerino," s. 46, and in his Fourth oration "In Verrem," s. 1.—B. Pausanias, in his "Eliaca," says that the Spanish copper, or copper of Tartessus, was the first known.

[28] Or Cattle Market: in the Eighth Region of the City. See B. xxxv. c. 7, and Chapter 16 of this Book.

Tonans, in the Capitol, is of the Delian. Myron[29] used the former metal and Polycletus[30] the latter; they were contemporaries and fellow-pupils, but there was great rivalry between them as to their materials.

CHAP. 6. (3.)—STANDS FOR LAMPS.

Ægina was particularly famous for the manufacture of sockets only for lamp-stands, as Tarentum was for that of the branches;[31] the most complete articles were, therefore, produced by the union of the two. There are persons, too, who are not ashamed to give for one a sum equal to the salary of a military tribune,[32] although, as its name indicates, its only use is to hold a lighted candle. On the sale of one of these lamp-stands, Theon the public crier announced, that the purchaser must also take, as part of the lot, one Clesippus, a fuller, who was hump-backed, and in other respects, of a hideous aspect. The purchase was made by a female named[33] Gegania, for fifty thousand sesterces. Upon her exhibiting these purchases at an entertainment which she gave, the slave, for the amusement of her guests, was brought in naked. Conceiving an infamous passion for him, she first admitted him to her bed, and finally left him all her estate. Having thus become excessively rich, he adored the lamp-stand as much as any divinity, and the story became a sort of pendant to the celebrity of the Corinthian lamp-stands. Still, however, good morals were vindicated in the end, for he erected a splendid monument to her memory, and so kept alive the eternal remembrance of the misconduct of Gegania. But although it is well known that there are no lamp-stands in existence made of the Corinthian metal, yet this name is very generally attached to them, because, in consequence of the victory of

[29] A distinguished statuary and engraver on silver. He lived in Olympiad 87. Further mention is made of him by Cicero, Ovid, Strabo, and Pansanias. See also Chapter 19 of this Book.

[30] There were several artists of this name. The elder Polycletus, a native either of Sicyon or of Argos, is probably the one here referred to. For further particulars of him, see Chapter 19.

[31] The words in the original are, respectively *candelabra*, *superficies*, and *scapi*.—B.

[32] Probably a proverbial expression at Rome, as it is employed by Juvenal, in an analogous manner, upon another occasion; Sat. iii. l. 132.—B.

[33] Plutarch speaks of the Geganii as an ancient noble family at Rome.

Mummius,[34] Corinth was destroyed: at the same time, however, it should be remembered that this victory dispersed a number of bronzes which originally came from many other cities of Achaia.

### CHAP. 7.—ORNAMENTS OF THE TEMPLES MADE OF BRASS.

The ancients were in the habit of making the door-sills and even the doors of the temples of brass. I find it stated, also, that Cneius Octavius, who obtained a naval triumph over King Perseus,[35] erected the double portico to the Flaminian Circus, which was called the "Corinthian" from the brazen capitals of the pillars.[36] It is stated also, that an ordinance was made that the Temple of Vesta[37] should be covered with a coating of Syracusan metal. The capitals, too, of the pillars, which were placed by M. Agrippa in the Pantheon, are made of similar metal. Even the opulence, too, of private individuals has been wrested to similar purposes. Spurius Carvilius, the quæstor, among the other charges which he brought against Camillus,[38] accused him of having brazen doors in his house.

### CHAP. 8.—COUCHES OF BRASS.

We learn from L. Piso,[39] that Cneius Manlius was the first who introduced brazen banquetting-couches, buffets, and tables with single feet,[40] when he entered the City in triumph, in the year of Rome 567, after his conquests in Asia. We also learn from Antias,[41] that the heirs of L. Crassus, the orator, sold a number of banquetting-couches adorned with brass. The

[34] See B. xxxiii. c. 53.

[35] A.U.C. 585; we have an account of it in Livy, B. xiv. c. 42.—B.

[36] This building is referred to by Velleius Paterculus, in the beginning of the Second Book of his History.—B. According to Aurelius Victor, it was situated in the Ninth Region of the City.

[37] The Temple of Vesta is described by Ovid, Fasti, B. vi. l. 265, *et seq.*—B.

[38] C. Camillus probably, the Roman jurist and friend of Cicero.

[39] See end of B. ii.

[40] "Triclinia," "abaci," and "monopodia;" these appear to have been couches for dining-tables, tables furnished with cupboards, and tables standing on a single foot. Livy, B. xxxix. c. 6, informs us, that Cneius Manlius, in his triumphal procession, introduced into Rome various articles of Asiatic luxury; "Lectos æratos, vestem stragulam preciosam, monopodia, et abacos." We are not to suppose that the whole of these articles were made of brass, but that certain parts of them were formed of this metal, or else were ornamented with brass.—B.

[41] See end of B. ii.

tripods,[42] which were called Delphian, because they were devoted more particularly to receiving the offerings that were presented to the Delphian Apollo, were usually made of brass: also the pendant lamps,[43] so much admired, which were placed in the temples, or gave their light in the form of trees loaded with fruit; such as the one, for instance, in the Temple of the Palatine Apollo,[44] which Alexander the Great, at the sacking of Thebes, brought to Cyme,[45] and dedicated to that god.

CHAP. 9. (4.)—WHICH WAS THE FIRST STATUE OF A GOD MADE OF BRASS AT ROME. THE ORIGIN OF STATUES, AND THE RESPECT PAID TO THEM.

But after some time the artists everywhere applied themselves to representations of the gods. I find that the first brass image, which was made at Rome, was that of Ceres; and that the expenses were defrayed out of the property that belonged to Spurius Cassius, who was put to death by his own father, for aspiring to the regal office.[46] The practice, however, soon passed from the gods to the statues and representations of men, and this in various forms. The ancients stained their statues with bitumen, which makes it the more remarkable that they were afterwards fond of covering them with gold. I do not know whether this was a Roman invention; but it certainly has the repute of being an ancient practice at Rome.

It was not the custom in former times to give the likeness of individuals, except of such as deserved to be held in lasting remembrance on account of some illustrious deed; in the first instance, for a victory at the sacred games, and more particularly the Olympic Games, where it was the usage for the victors always to have their statues consecrated. And if any one was so fortunate as to obtain the prize there three times, his statue

[42] "Cortinas tripodum." These articles of furniture consisted of a table or slab, supported by three feet, which was employed, like our sideboards, for the display of plate, at the Roman entertainments.—B.

[43] "Lychnuchi pensiles;" this term is applied by Suetonius, Julius, s. 37; we may conceive that they were similar to the modern chandeliers.—B.

[44] This temple was dedicated by Augustus A.U.C. 726. The lamps in it, resembling trees laden with fruit, are mentioned by Victor in his description of the Tenth Quarter of the City.—B.

[45] See B. v. c. 32.

[46] We have an account of this event in Livy, B. ii. c. 41, in Valerius Maximus, and in Dionysius of Halicarnassus.—B.

was made with the exact resemblance of every individual limb; from which circumstance they were called "iconicæ."[47] I do not know whether the first public statues were not erected by the Athenians, and in honour of Harmodius and Aristogiton, who slew the tyrant;[48] an event which took place in the same year in which the kings were expelled from Rome. This custom, from a most praiseworthy emulation, was afterwards adopted by all other nations; so that statues were erected as ornaments in the public places of municipal towns, and the memory of individuals was thus preserved, their various honours being inscribed on the pedestals, to be read there by posterity, and not on their tombs alone. After some time, a kind of forum or public place came to be made in private houses and in our halls, the clients adopting this method of doing honour to their patrons.

### CHAP. 10. (5.)—THE DIFFERENT KINDS AND FORMS OF STATUES. STATUES AT ROME WITH CUIRASSES.

In former times the statues that were thus dedicated were clad in the toga.[49] Naked statues also, brandishing a spear, after the manner of the youths at their gymnastic exercises, were much admired; these were called "Achillean." The Greek practice is, not to cover any part of the body; while, on the contrary, the Roman and the military statues have the addition of a cuirass. Cæsar, the Dictator, permitted a statue with a cuirass to be erected in honour of him in his Forum.[50] As to the statues which are made in the garb of the Luperci,[51] they are of no older date than those which have been lately erected, covered with a cloak.[52] Mancinus gave directions, that he should be represented in the dress which he wore when he was surrendered to the enemy.[53] It has been remarked by

[47] "Iconicæ," "portrait statues," from ἔικων, of the same meaning. This term is employed by Suetonius, in speaking of a statue of Caligula, c. 22.—B.

[48] Pisistratus. These statues are mentioned in the 19th Chapter of this Book, as being the workmanship of Praxiteles.—B.

[49] See B. vii. cc. 31, 34: B. viii. c. 74: and B. ix. c. 63.

[50] Near the Temple of Janus, in the Eighth Region of the City.

[51] The Luperci were the priests of Pan, who, at the celebration of their games, called Lupercalia, were in the habit of running about the streets of Rome, with no other covering than a goat's skin tied about the loins.—B.

[52] "Pænula." See B. viii. c. 73.

[53] We are informed by Cicero, De Off. B. iii. c. 30, and by Valerius

some authors, that L. Attius,[54] the poet, had a statue of himself erected in the Temple of the Muses,[55] which was extremely large, although he himself was very short.

Equestrian statues are also held in esteem in Rome; but they are of Greek origin; no doubt. Among the Greeks, those persons only were honoured with equestrian statues who were victors on horseback[56] in the sacred games; though afterwards the same distinction was bestowed on those who were successful in the races with chariots with two or four horses: hence the use of chariots with us in the statues of those who have triumphed. But this did not take place until a late period; and it was not until the time of the late Emperor Augustus, that we had chariots represented with six horses,[57] as also with elephants.

CHAP. 11.—IN HONOUR OF WHOM PUBLIC STATUES WERE FIRST ERECTED: IN HONOUR OF WHOM THEY WERE FIRST PLACED ON PILLARS: WHEN THE ROSTRA WERE FIRST ERECTED.

The custom of erecting chariots with two horses in honour of those who had discharged the office of prætor, and had passed round the Circus in a chariot, is not of ancient date. That of placing statues on pillars is older, as it was done in honour of C. Mænius,[58] who conquered the ancient Latins, to whom the Romans by treaty gave one third of the spoil which they had obtained. It was in the same consulship also, that the "rostra" or beaks of the ships, which had been taken from the Antiates when vanquished, were fixed to the tribunal; it

Maximus, B. ii. c. 7, that Marcinus made a treaty with the Numantines, which the senate refused to ratify, and that he was, in consequence, surrendered to the enemy. We may suppose that he regarded the transaction as redounding more to the discredit of the senate than of himself.—B.

[54] See end of B. xviii.

[55] In the First Region of the City, near the Capenian Gate.

[56] "Celetes;" this appellation is derived from the Greek word κέλης, "swift," and was applied to those who rode on horseback, in opposition to the charioteers.—B.

[57] Poinsinet remarks that Pliny has forgotten the gilded chariot, with six horses, which Cneius Cornelius dedicated in the Capitol, two hundred years before Augustus; he also refers to an ancient inscription in Gruter, which mentions chariots of this description.—B.

[58] Mænius was consul with Furius Camillus, A.U.C. 416; we have an account of his victories over the Latins and other neighbouring nations in Livy, B. viii. c. 14.—B.

being the year of the City, 416.[59] The same thing was done also by Caius Duillius, who was the first to obtain a naval triumph over the Carthaginians: his column still remains in the Forum.[60] I am not certain whether this honour was not first conferred by the people on L. Minutius, the præfect of the markets; whose statue was erected without the Trigeminian Gate,[61] by means of a tax of the twelfth of an as[62] per head: the same thing, however, had been previously done by the senate, and it would have been a more distinguished honour had it not had its origin on such frivolous occasions. The statue of Attus Navius,[63] for example, was erected before the senate-house, the pedestal of which was consumed when the senate-house itself was burnt at the funeral of Publius Clodius.[64] The statue of Hermodorus also, the Ephesian,[65] the interpreter of the laws which were transcribed by the Decemvirs, was erected by the public in the Comitium.[66]

It was for a very different, and more important reason, that the statue of Horatius Cocles was erected, he having singly prevented the enemy from passing the Sublician bridge;[67] a statue which remains to this day. I am not at all surprized, too, that statues of the Sibyl should have been erected near the Rostra, even though three in number; one of which was repaired by Sextus Pacuvius Taurus, ædile of the people, and the other two by M. Messala. I should have considered these and that of Attus Navius to have been the oldest, as having

[59] We have an account of this transaction in Livy, B. viii. c. 14. This trophy is also mentioned by Florus, B. i. c. 11. The "Suggestus" was an elevated place, formed for various purposes, the stage from which the orators addressed the people, the place from which the general addressed his soldiers, and the seat occupied by the emperor at the public games.—B.

[60] Florus, B. ii. c. 2, gives an account of the arrangements and equipment of the Carthaginian fleet, the victory of Duillius, and the rostral monument erected in its commemoration.—B.

[61] See B. xviii. c. 4.

[62] "Unciariâ stipe;" the *uncia* was the twelfth part of the "as," and the word *stips* was regarded as equivalent to *as*, as being the usual pay of the soldiers.—B. See Introduction to Vol. III.

[63] See B. xv. c. 20.

[64] This circumstance is mentioned by Cicero in his Defence of Milo, § 90-1.—B.

[65] We have some account of Hermodorus in Cicero's Tusc. Quæs. B. v. c. 36.—B.

[66] See B. x. c. 2, B. xviii. c. 3, and B. xxxiii. c. 7.

[67] Livy, B. ii. c. 10, and Valerius Maximus, B. iii. c. 2, give an account of this event. A. Gellius incidentally mentions the statue, and its position in the Comitium, B. iv. c. 5.—B.

been placed there in the time of Tarquinius Priscus, had there not been in the Capitol the statues of the preceding kings.[68]

(6.) Among these we have the statues of Romulus and Tatius without the tunic; as also that of Camillus, near the Rostra. The equestrian statue of Marcius Tremulus, clad in the toga, stood before the Temple of the Castors;[69] him who twice subdued the Samnites, and by the capture of Anagnia delivered the people from their tribute.[70] Among the most ancient are those of Tullus Clœlius, Lucius Roscius, Spurius Nautius, and C. Fulcinus, near the Rostra, all of whom were assassinated by the Fidenates, when on their mission as ambassadors.[71] It was the custom with the republic to confer this honour on those who had been unjustly put to death; such as P. Junius, also, and Titus Coruncanius, who were slain by Teuta, queen of the Illyrians.[72] It would be wrong not to mention what is stated in the Annals, that their statues, erected in the Forum, were three feet in height; whence it would appear that such were the dimensions of these marks of honour in those times.

Nor must I forget to mention Cneius Octavius, on account of the language used by the senate.[73] When King Antiochus said, that he would give him an answer at another time, Octavius drew a line round him with a stick, which he happened to have in his hand, and compelled him to give an answer before he allowed him to step beyond the circle. Octavius being slain[74] while on this embassy, the senate ordered his statue to be placed in the most conspicuous[75] spot; and that

[68] We are informed by Dion Cassius, that there were eight statues in the Capitol, seven of which were of the kings, and the eighth of Brutus, who overthrew the kingly government; at a later period the statue of Cæsar was placed by the side of that of Brutus.—B.

[69] Suetonius, speaking of this temple, remarks, that though dedicated to the brothers Castor and Pollux, it was only known as the Temple of Castor.—B.

[70] We have an account of the victory of Tremulus over the Hernici, and of the statue erected in honour of him, in Livy, B. ix. c. 43.—B.

[71] This event is referred to by Cicero, Philipp. ix., 5.—B.

[72] Florus, B. ii. c. 5, gives an account of the murder of P. Junius and T. Coruncanius.—B.

[73] In the Bamberg MS. the reading is "unum se. verbum." Gronovius is probably right in his conjecture that the word is "senatus consulti."

[74] By one Leptines, at Laodicea.

[75] "Oculatissimo." The place where there was "the most extended eyeshot." It is to this singular expression, probably, that Pliny alludes.

spot was the Rostra. A statue appears also to have been decreed to Taracia Caia, or Furetia, a Vestal Virgin, the same, too, to be placed wherever she might think fit; an additional honour, no less remarkable, it is thought, than the grant itself of a statue to a female. I will state her merits in the words of the Annals: "Because she had gratuitously presented to the public the field bordering on the Tiber."[76]

### CHAP. 12.— IN HONOUR OF WHAT FOREIGNERS PUBLIC STATUES WERE ERECTED AT ROME.

I find also, that statues were erected in honour of Pythagoras and of Alcibiades, in the corners of the Comitium; in obedience to the command of the Pythian Apollo, who, in the Samnite War,[77] had directed that statues of the bravest and the wisest of the Greeks should be erected in some conspicuous spot: and here they remained until Sylla, the Dictator, built the senate-house on the site. It is wonderful that the senate should then have preferred Pythagoras to Socrates, who, in consequence of his wisdom, had been preferred to all other men[78] by the god himself; as, also, that they should have preferred Alcibiades for valour to so many other heroes; or, indeed, any one to Themistocles, who so greatly excelled in both qualities. The reason of the statues being raised on columns, was, that the persons represented might be elevated above other mortals; the same thing being signified by the use of arches, a new invention which had its origin among the Greeks. I am of opinion that there is no one to whom more statues were erected than to Demetrius Phalereus[79] at Athens: for there were three hundred and sixty erected in his honour, there being reckoned at that period no more days in the year: these, however, were soon broken to pieces. The different tribes erected statues, in all the quarters of Rome, in honour of Marius Gratidianus, as already stated;[80] but they were all thrown down by Sylla, when he entered Rome.

[76] "Quod campum Tiberinum gratificata esset ea populo."

[77] A.U.C. 441.

[78] See B. vii. c. 31.

[79] His life has been written by Diogenes Laertius, and he is mentioned by Cicero, de Fin. B. v. c. 19. and by Strabo.—B.

[80] In B. xxxiii. c. 46.

CHAP. 13.—THE FIRST EQUESTRIAN STATUES PUBLICLY ERECTED AT ROME, AND IN HONOUR OF WHAT FEMALES STATUES WERE PUBLICLY ERECTED THERE.

Pedestrian statues have been, undoubtedly, for a long time in estimation at Rome: equestrian statues are, however, of considerable antiquity, and females even have participated in this honour; for the statue of Clælia is equestrian,[81] as if it had not been thought sufficient to have her clad in the toga; and this, although statues were not decreed to Lucretia, or to Brutus, who had expelled the kings, and through both of whom Clælia had been given as a hostage.[82] I should have thought that this statue, and that of Cocles, were the first that were erected at the public expense—for it is most likely that the statues of Attus and the Sibyl were erected by Tarquinius, and those of each of the other kings by themselves respectively—had not Piso stated that the statue of Clælia was erected by those who had been hostages with her, when they were given up by Porsena, as a mark of honour.

But Annius Fetialis[83] states, on the other hand, that the equestrian statue, which stood opposite the Temple of Jupiter Stator, in the vestibule of the house of Tarquinius Superbus, was that of Valeria,[84] the daughter of the consul Publicola; and that she was the only person that escaped and swam across the Tiber; the rest of the hostages that had been sent to Porsena having been destroyed by a stratagem of Tarquinius.

CHAP. 14.—AT WHAT PERIOD ALL THE STATUES ERECTED BY PRIVATE INDIVIDUALS WERE REMOVED FROM THE PUBLIC PLACES.

We are informed by L. Piso, that when M. Æmilius and C. Popilius were consuls, for the second time,[85] the censors, P. Cornelius Scipio and M. Popilius, caused all the statues erected round the Forum in honour of those who had borne the office of magistrates, to be removed; with the exception of those which had been placed there, either by order of the

[81] We have an account of the exploit of Clælia in Livy, B. ii. c. 13, and in Valerius Maximus, B. iii. c. 2: there is a reference to this statue in Seneca, de Consol. c. 16.—B.

[82] To King Porsena.

[83] See end of B. xvi.

[84] Plutarch says that it was uncertain whether the statue was erected to Clælia or to Valeria.—B.

[85] A.U.C. 596.—B.

people or of the senate. The statue also which Spurius Cassius,[86] who had aspired to the supreme authority, had erected in honour of himself, before the Temple of Tellus, was melted down by order of the censors; for even in this respect, the men of those days took precautions against ambition.

There are still extant some declamations by Cato, during his censorship, against the practice of erecting statues of women in the Roman provinces. However, he could not prevent these statues being erected at Rome even; to Cornelia, for instance, the mother of the Gracchi, and daughter of the elder Scipio Africanus. She is represented in a sitting posture, and the statue is remarkable for having no straps to the shoes. This statue, which was formerly in the public Portico of Metellus, is now in the Buildings of Octavia.[87]

## CHAP. 15.—THE FIRST STATUES PUBLICLY ERECTED BY FOREIGNERS.

The first statue that was erected at Rome at the expense of a foreigner was that of C. Ælius, the tribune of the people, who had introduced a law against Sthennius Statilius Lucanus,[88] for having twice attacked Thurii: on which account the inhabitants of that place presented Ælius with a statue and a golden crown. At a later period, the same people erected a statue to Fabricius,[89] who had delivered their city from a state of siege. From time to time various nations thus placed themselves under the protection of the Romans; and all distinctions were thereby so effectually removed, that statues of Hannibal even are to be seen in three different places in that city, within the walls of which, he alone of all its enemies, had hurled his spear.[90]

[86] See Chapter 9.

[87] "In Octaviæ operibus." These were certain public buildings, erected in Rome by Augustus, and named by him after his sister Octavia; they are mentioned by Suetonius.—B.

[88] Valerius Maximus refers to this event, but he names the individual Statius Servilius, B. i. c. 8, § 6.—B.

[89] See B. xxxiii. cc. 50, 54.

[90] We have an account of the attack by Hannibal on Rome in the twenty-sixth Book of Livy, but we have no mention of the particular circumstance here referred to.—B.

CHAP. 16. (7.)—THAT THERE WERE STATUARIES IN ITALY ALSO AT AN EARLY PERIOD.

Various circumstances prove, that the art of making statues was commonly practised in Italy at an early period. The statue in the Cattle Market[91] is said to have been consecrated to Hercules by Evander; it is called the triumphal Hercules, and, on the occasion of triumphal processions, is arrayed in triumphal vestments. And then besides, King Numa dedicated the statue of the two-faced Janus;[92] a deity who is worshipped as presiding over both peace and war. The fingers, too, are so formed as to indicate three hundred and sixty-five days,[93] or in other words, the year; thus denoting that he is the god of time and duration.

There are also Etruscan statues dispersed in various parts of the world, which beyond a doubt were originally made in Etruria. I should have supposed that these had been the statues only of divinities, had not Metrodorus[94] of Scepsis, who had his surname from his hatred to the Roman name,[95] reproached us with having pillaged the city of Volsinii for the sake of the two thousand statues which it contained. It appears to me a singular fact, that although the origin of statues was of such great antiquity in Italy, the images of the gods, which were consecrated to them in their temples, should have been formed either of wood or of earthenware,[96] until the conquest of Asia, which introduced luxury among us. It will be the best plan to enlarge upon the origin of the art of expressing likenesses, when we come to speak of what the

[91] "Forum Boarium." See Chapter 5.

[92] Livy, B. i. c. 19, informs us, that Numa made Janus of a form to denote both peace and war.—B.

[93] The mode in which the fingers were placed, so as to serve the purpose here indicated, is supposed to have been by their forming the letters which were the Roman numerals for the figures in question. We are informed that some MSS. of Pliny give the number three hundred and fifty-five only, and there is reason to believe that, in the time of Numa, this was considered to be the actual number of days in the year. Some of the commentators, however, are disposed to read three hundred and sixty-five; and this opinion derives some support from Macrobius, who refers to this statue as indicating this latter number with its fingers.—B. The Bamberg MS. gives three hundred and sixty-five.

[94] See end of B. iii.

[95] "Misoromæus"—"Roman-hater." See end of B. iii.

[96] Pliny himself informs us, in B. xxxv. c. 45, that the statue of Jupiter in the Capitol, erected by Tarquinius Priscus, was formed of earth.—B.

Greeks call "plastice;"[96*] for the art of modelling was prior to that of statuary. This last, however, has flourished to such an extraordinary degree, that an account of it would fill many volumes, if we were desirous of making an extensive acquaintance with the subject: but as to learning everything connected with it, who could do it?

### CHAP. 17.—THE IMMODERATE PRICES OF STATUES.

In the ædileship of M. Scaurus, there were three thousand statues erected on the stage of what was a temporary theatre[97] only. Mummius, the conqueror of Achaia, filled the City with statues; he who at his death was destined not to leave a dowry to his daughter,[98] for why not mention this as an apology for him? The Luculli[99] also introduced many articles from abroad. Yet we learn from Mucianus,[1] who was thrice consul, that there are still three thousand statues in Rhodes, and it is supposed that there are no fewer in existence at Athens, at Olympia, and at Delphi. What living mortal could enumerate them all? or of what utility would be such information? Still, however, I may, perhaps, afford amusement by giving some slight account of such of those works of art as are in any way remarkable, and stating the names of the more celebrated artists. Of each of these it would be impossible to enumerate all the productions, for Lysippus[2] alone is said to have executed no less than fifteen hundred[2*] works of art, all of which were of such excellence that any one of them might have immortalized him. The number was ascertained by his heir, upon opening his coffers after his death, it having been his practice to lay up one golden

[96*] The art of moulding or modelling in argillaceous earth; see B. xxxv. cc. 43, 45.

[97] See B. xxxvi. c. 2, where he informs us that this theatre was hardly one month in use.—B.

[98] Hardouin gives several quotations illustrative of his liberality in bestowing ornaments in the City, and his inattention to his domestic concerns.—B.

[99] The brothers Lucius and Marcus, the former of whom triumphed in the Mithridatic, the latter in the Macedonian War.—B.

[1] See end of B. ii.

[2] See B. vii. c. 38.

[2*] The absolute number of statues assigned to Lysippus differs considerably in the different editions, as is the case in almost every instance where figures are concerned. Pliny gives a further account of his works in the next two Chapters and in the following Book.—B.

denarius[3] out of the sum which he had received as the price of each statue.

This art has arrived at incredible perfection, both in successfulness and in boldness of design. As a proof of successfulness, I will adduce one example, and that of a figure which represented neither god nor man. We have seen in our own time, in the Capitol, before it was last burnt by the party[4] of Vitellius, in the shrine of Juno there, a bronze figure of a dog licking its wounds. Its miraculous excellence and its perfect truthfulness were not only proved by the circumstance of its having been consecrated there, but also by the novel kind of security that was taken for its safety; for, no sum appearing equal to its value, it was publicly enacted that the keepers of it should be answerable for its safety with their lives.

### CHAP. 18.—THE MOST CELEBRATED COLOSSAL STATUES IN THE CITY.

As to boldness of design, the examples are innumerable; for we see designed, statues of enormous bulk, known as colossal statues and equal to towers in size. Such, for instance, is the Apollo in the Capitol, which was brought by M. Lucullus from Apollonia, a city of Pontus,[5] thirty cubits in height, and which cost five hundred talents: such, too, is the statue of Jupiter, in the Campus Martius, dedicated by the late Emperor Claudius, but which appears small in comparison from its vicinity to the Theatre of Pompeius: and such is that at Tarentum, forty cubits in height, and the work of Lysippus.[6] It is a remarkable circumstance in this statue, that though, as it is stated, it is so nicely balanced as to be moveable by the hand, it has never been thrown down by a tempest. This indeed, the artist, it is said, has guarded against, by a column erected at a short distance from it, upon the side on which the violence of the wind required to be broken. On account, therefore, of its magnitude, and the great difficulty of moving it, Fabius Verrucosus[7] did not

[3] "Aureum." See B. xxxiii. c. 13, and B. xxxvii. c. 3.

[4] In their attack upon Flavius Sabinus, the brother of Vespasian; A.U.C. 822.

[5] See B. iv. c. 27.

[6] It was a statue of Jupiter.

[7] Better known by the name of Q. Fabius Maximus; he acquired the soubriquet of Verrucosus from a large wart on the upper lip.—B.

touch it, when he transferred the Hercules from that place to the Capitol, where it now stands.

But that which is by far the most worthy of our admiration, is the colossal statue of the Sun, which stood formerly at Rhodes, and was the work of Chares the Lindian, a pupil of the above-named Lysippus;[8] no less than seventy cubits in height. This statue, fifty-six years after it was erected, was thrown down by an earthquake; but even as it lies, it excites our wonder and admiration.[9] Few men can clasp the thumb in their arms, and its fingers are larger than most statues. Where the limbs are broken asunder, vast caverns are seen yawning in the interior. Within it, too, are to be seen large masses of rock, by the weight of which the artist steadied it while erecting it. It is said that it was twelve years before this statue was completed, and that three hundred talents were expended upon it; a sum raised from the engines of warfare which had been abandoned by King Demetrius,[10] when tired of the long-protracted siege of Rhodes. In the same city there are other colossal statues, one hundred in number; but though smaller than the one already mentioned, wherever erected, they would, any one of them, have ennobled the place. In addition to these, there are five colossal statues of the gods, which were made by Bryaxis.[11]

Colossal statues used also to be made in Italy. At all events, we see the Tuscan Apollo, in the library of the Temple of Augustus,[12] fifty feet in height from the toe; and it is a question whether it is more remarkable for the quality of the metal, or for the beauty of the workmanship. Spurius Carvilius also erected the statue of Jupiter which is seen in the Capitol, after he

[8] The Colossus of Rhodes was begun by Chares, but he committed suicide, in consequence of having made some mistake in the estimate; the work was completed by Laches, also an inhabitant of Lindos.—B.

[9] It remained on the spot where it was thrown down for nearly nine hundred years, until the year 653 A.D., when Moavia, khalif of the Saracens, after the capture of Rhodes, sold the materials; it is said that it required nine hundred camels to remove the remains.—B.

[10] Demetrius Poliorcetes. See B. XXXV. c. 36.

[11] He is mentioned by Columella, in his Introduction to his work De Re Rusticâ, in connexion with the most celebrated Grecian artists.—B.

[12] Suetonius, in describing the temple which Augustus dedicated to Apollo, on the Palatine Hill, speaks of the Portico with the Latin and Greek library.—B.

had conquered the Samnites,[13] who fought in obedience to a most solemn oath; it being formed out of their breast-plates, greaves, and helmets, and of such large dimensions that it may be seen from the statue of Jupiter Latiaris.[14] He made his own statue, which is at the feet of the other one, out of the filings of the metal. There are also, in the Capitol, two heads which are very much admired, and which were dedicated by the Consul P. Lentulus, one of them executed by the above-mentioned Chares,[15] the other by Decius;[16] but this last is so greatly excelled by the former, as to have all the appearance of being the work of one of the poorest of artists.

But all these gigantic statues of this kind have been surpassed in our own age by that of Mercury, made by Zenodotus[16*] for the city of the Arverni in Gaul,[17] which was ten years in being completed, and the making of which cost four hundred thousand sesterces. Having given sufficient proof there of his artistic skill, he was sent for by Nero to Rome, where he made a colossal statue intended to represent that prince, one hundred and ten feet in height. In consequence, however, of the public detestation of Nero's crimes, this statue was consecrated to the Sun.[18] We used to admire in his studio, not only the accurate likeness in the model of clay, but in the small sketches[19] also, which served as the first foundation of the work. This statue proves that the art of fusing [precious] brass was then lost, for Nero was prepared to furnish

[13] This victory took place A.U.C. 461; we have an account of it in Livy, the concluding Chapter of the Tenth Book.—B.

[14] This was a statue of Jupiter, placed on the Alban Mount, twelve miles from Rome. At this place the various states of Latium exercised their religious rites in conjunction with the Romans; it was sometimes called Latialis.—B. See B. iii. c. 9, and Notes; Vol. I. p. 205.

[15] The designer of the Colossus at Rhodes.

[16] Decius is said by Hardouin to have been a statuary, but nothing is known respecting him or his works.—B. He probably lived about the time of the Consul P. Cornelius Lentulus Spinther, A.U.C. 697.

[16*] His country is unknown. [17] See B. iv. c. 33.

[18] St. Jerome informs us, that Vespasian removed the head of Nero, and substituted that of the Sun with seven rays. Martial refers to it in the Second Epigram *De Spectaculis*, and also B. i. Ep. 71.—B.

[19] "Parvis admodum surculis." There is, it appears, some difficulty in determining the application of the word *surculis* to the subject in question, and we have no explanation of it by any of the commentators. Can it refer to the frame of wicker work which contained the model into which the melted metal was poured?—B.

the requisite gold and silver, and Zenodotus was inferior to none of the ancients, either as a designer or as an engraver.[20] At the time that he was working at the statue for the Arverni, he copied for Dubius Avitus, the then governor of the province, two drinking-cups, chased by the hand of Calamis,[21] which had been highly prized by Germanicus Cæsar, and had been given by him to his preceptor Cassius Silanus, the uncle of Avitus; and this with such exactness, that they could scarcely be distinguished from the originals. The greater, then, the superiority of Zenodotus, the more certainly it may be concluded that the secret of fusing [precious] brass is lost.

(8.) Persons who possess what are called Corinthian bronzes,[22] are generally so much enamoured of them, as to carry them about with them from place to place; Hortensius, the orator, for instance, who possessed a Sphinx, which he had made Verrês give him, when accused. It was to this figure that Cicero alluded, in an altercation which took place at the trial: when, upon Hortensius saying that he could not understand enigmas, Cicero made answer that he ought to understand them, as he had got a Sphinx[23] at home. The Emperor Nero, also, used to carry about with him the figure of an Amazon, of which I shall speak further hereafter;[24] and, shortly before this, C. Cestius, a person of consular[25] rank, had possessed a figure, which he carried with him even in battle. The tent, too, of Alexander the Great was usually supported, it is said, by statues, two of which are consecrated before the Temple of Mars Ultor,[26] and a similar number before the Palace.[27]

[20] This observation has been supposed to imply, that Zenodotus cast his statues in a number of separate pieces, which were afterwards connected together, and not, as was the case with the great Grecian artists, in one entire piece.—B.

[21] See B. xxxiii. c. 55.

[22] The term *signum*, which is applied to the Corinthian figures, may mean a medallion, or perhaps a seal-ring or brooch; we only know that it must have been something small, which might be carried about the person, or, at least, easily moved from place to place.—B. *Statuette*, probably.

[23] Her riddle, and its solution by Œdipus, are too well known to need repetition here.

[24] In the following Chapter.

[25] Consul A.U.C. 787.

[26] The "Avenger." In the Forum of Augustus, in the Eighth Region of the City.

[27] "Regia." The palace of Minerva, also in the Forum of Augustus.—B.

CHAP. 19.—AN ACCOUNT OF THE MOST CELEBRATED WORKS IN BRASS, AND OF THE ARTISTS, 366 IN NUMBER.

An almost innumerable multitude of artists have been rendered famous by their statues and figures of smaller size. Before all others is Phidias,[28] the Athenian, who executed the Jupiter at Olympia, in ivory and gold,[29] but who also made figures in brass as well. He flourished in the eighty-third Olympiad, about the year of our City, 300. To the same age belong also his rivals Alcamenes,[30] Critias,[31] Nesiotes,[32] and Hegias.[33] Afterwards, in the eighty-seventh Olympiad, there were Agelades,[34] Callon,[35] and Gorgias the Laconian. In the ninetieth Olympiad there were Polycletus,[36] Phradmon,[37] Myron,[38] Pythagoras,[39] Scopas,[40] and Perellus.[41] Of these, Polycletus had for pupils, Argius,[42] Asopodorus, Alexis, Aristides,[43] Phrynon, Dinon, Athenodorus,[44] and Demeas[45] the

[28] See B. vii. c. 39, B. xxxv. c. 34, and B. xxxvi. c. 4.

[29] We have an account of this statue, and of the temple in which it was placed, by Pausanias, B. v. There is no work of Phidias now in existence; the sculptures in the Parthenon were, however, executed by his pupils and under his immediate directions, so that we may form some judgment of his genius and taste.—B. There is a foot in the British Museum, said to be the work of Phidias.

[30] An Athenian; see B. xxxvi. c. 5. He is spoken of in high terms by Pausanias and Valerius Maximus.

[31] Tutor of Ptolichus of Corcyra, and highly distinguished for his statues of the slayers of the tyrants at Athens. He is mentioned also by Lucian and Pausanias.

[32] The reading is uncertain here, the old editions giving "Nestocles." We shall *only* devote a Note to such artists as are mentioned by other authors besides Pliny. [33] An Athenian; mentioned also by Pausanias.

[34] There were probably two artists of this name; one an Argive, tutor of Phidias, and the other a Sicyonian, the person here referred to.

[35] A native of Ægina, mentioned by Pausanias. There is also a statuary of Elis of the same name, mentioned by Pausanias, and to whom Thiersch is of opinion reference is here made.

[36] See Chapter 5 of this Book. [37] An Argive, mentioned by Pausanias.

[38] See Chapter 5 of this Book.

[39] Again mentioned by Pliny, as a native of Rhegium in Italy.

[40] A native of Paros, mentioned also by Pausanias and Strabo.

[41] Probably "Perillus," the artist who made the brazen bull for Phalaris, the tyrant of Agrigentum. The old reading is "Parelius."

[42] This and the following word probably mean one person—"Asopodorus the Argive."

[43] Perhaps the same person that is mentioned by Pausanias, B. vi. c. 20, as having improved the form of the starting-place at the Olympic Games.

[44] Mentioned by Pausanias as an Arcadian, and son of Clitor.

[45] A native of Clitorium in Arcadia, and mentioned also by Pausanias.

Clitorian: Lycius,[46] too, was the pupil of Myron. In the ninety-fifth Olympiad flourished Naucydes,[47] Dinomenes,[48] Canachus,[49] and Patroclus.[50] In the hundred and second Olympiad there were Polycles,[51] Cephisodotus,[52] Leochares,[53] and Hypatodorus.[54] In the hundred and fourth Olympiad, flourished Praxiteles[55] and Euphranor;[56] in the hundred and seventh, Aëtion[56*] and Therimachus;[57] in the hundred and thirteenth, Lysippus,[58] who was the contemporary of Alexander the Great, his brother Lysistratus,[59] Sthennis,[60] Euphron, Eucles, Sostratus,[61] Ion, and Silanion,[62] who was remarkable for

[46] He is said by Pausanias and Athenæus to have been the son, also, of Myron.

[47] Son of Motho, and a native of Argos. He was brother and instructor of the younger Polycletus, of Argos. He is mentioned also by Pausanias and Tatian.

[48] He is once mentioned by Pausanias, and there is still extant the basis of one of his works, with his name inscribed.

[49] It is supposed that there were two artists of this name, both natives of Sicyon, the one grandson of the other. They are both named by Pausanias.

[50] Probably a Sicyonian; he is mentioned also by Pausanias.

[51] As Pliny mentions two artists of this name, it is impossible to say to which of them Pausanias refers as being an Athenian, in B. vi. c. 4.

[52] The elder artist of this name. He was an Athenian, and his sister was the wife of Phocion. He is also mentioned by Plutarch and Pausanias.

[53] An Athenian; he is mentioned also by Vitruvius, Pausanias, and Tatian. Winckelmann mentions an inscription relative to him, which, however, appears to be spurious.

[54] He is mentioned also by Pausanias, and is supposed by Sillig to have been a Theban.

[55] Praxiteles held a high rank among the ancient sculptors, and may be considered as second to Phidias alone; he is frequently mentioned by Pausanias and various other classical writers. Pliny gives a further account of the works of Praxiteles in the two following Books.—B.

[56] He was also an eminent painter, and is also mentioned by Quintilian, Dio Chrysostom, and Plutarch.

[56*] Another reading is "Echion." [57] See B. xxxv. cc. 32, 36.

[58] This great artist, a native of Sicyon, has been already mentioned in B. vii. c. 39, and in the two preceding Chapters of the present Book; he is again mentioned in B. xxxv. c. 39.—B. See note 28 above.

[59] Also a native of Sicyon. He is mentioned by Tatian.

[60] Mentioned also by Pausanias, Plutarch, Strabo, and Appian. The next two names in former editions stand as one, "Euphronides."

[61] Supposed to have been an architect, and builder of the Pharos near Alexandria: see B. xxxvi. c. 18. The same person is mentioned also by Strabo, Lucian, and Suidas.

[62] An Athenian. He is mentioned also by Pausanias, Plutarch, Diogenes Laertius, and Tatian.

having acquired great celebrity without any instructor: Zeuxis[63] was his pupil. In the hundred and twenty-first Olympiad were Eutychides,[64] Euthycrates,[65] Laïppus,[66] Cephisodotus,[67] Timarchus,[68] and Pyromachus.[69]

The practice of this art then ceased for some time, but revived in the hundred and fifty-sixth Olympiad, when there were some artists, who, though far inferior to those already mentioned, were still highly esteemed; Antæus, Callistratus,[70] Polycles,[71] Athenæus,[72] Callixenus, Pythocles, Pythias, and Timocles.[73]

The ages of the most celebrated artists being thus distinguished, I shall cursorily review the more eminent of them, the greater part being mentioned in a desultory manner. The most celebrated of these artists, though born at different epochs, have joined in a trial of skill in the Amazons which they have respectively made. When these statues were dedicated in the Temple of Diana at Ephesus, it was agreed, in order to ascertain which was the best, that it should be left to the judgment of the artists themselves who were then present: upon which, it was evident that that was the best, which all the artists agreed in considering as the next best to his own. Accordingly, the first rank was assigned to Polycletus, the second to Phidias, the third to Cresilas, the fourth to Cydon, and the fifth to Phradmon.[74]

[63] See B. xxxv. c. 36.

[64] A Sicyonian, pupil of Lysippus. He is also mentioned by Pausanias; see also B. xxxvi. c. 4.

[65] Son and pupil of Lysippus. He is mentioned also by Tatian, and by some writers as the instructor of Xenocrates.

[66] Sillig thinks that this is a mistake made by Pliny for "Daïppus," a statuary mentioned by Pausanias.

[67] Son of Praxiteles, and mentioned by Tatian in conjunction with Euthycrates. The elder Cephisodotus has been already mentioned. See Note 52.

[68] Another son of Praxiteles. He is also alluded to by Pausanias, though not by name.

[69] His country is uncertain, but he was preceptor of Mygdon of Soli. See B. xxxv. c. 40.

[70] Mentioned also by Tatian; his country is unknown.

[71] It is doubtful whether Pausanias alludes, in B. vi. c. 4, to this artist, or to the one of the same name mentioned under Olymp. 102. See Note 51.

[72] Sillig suggests that this word is an adjective, denoting the country of Polycles, in order to distinguish him from the elder Polycles.

[73] We learn from Pausanias that he worked in conjunction with Timarchides. The other artists here mentioned are quite unknown.

[74] Sillig, in his "Dictionary of Ancient Artists," observes that "this passage contains many foolish statements." Also that there is "an obvious intermixture in it of truth and falsehood."

Phidias, besides the Olympian Jupiter, which no one has ever equalled, also executed in ivory the erect statue of Minerva, which is in the Parthenon at Athens.[75] He also made in brass, beside the Amazon above mentioned,[76] a Minerva, of such exquisite beauty, that it received its name from its fine proportions.[77] He also made the Cliduchus,[78] and another Minerva, which Paulus Æmilius dedicated at Rome in the Temple of Fortune[79] of the passing day. Also the two statues, draped with the pallium, which Catulus erected in the same temple; and a nude colossal statue. Phidias is deservedly considered to have discovered and developed the toreutic art.[80]

Polycletus of Sicyon,[81] the pupil of Agelades, executed the Diadumenos,[82] the statue of an effeminate youth, and remarkable for having cost one hundred talents; as also the statue of a youth full of manly vigour, and called the Doryphoros.[83] He also made what the artists have called the Model statue,[84] and from which, as from a sort of standard,

[75] This is universally admitted to have been one of the most splendid works of art. It is celebrated by various writers; Pausanias speaks of it in B. i. See also B. xxxvi. c. 4.—B.

[76] As being made for the Temple of Diana at Ephesus.

[77] Probably "Callimorphos," or "Calliste." We learn from Pausanias that it was placed in the Citadel of Athens. Lucian prefers it to every other work of Phidias.

[78] A figure of a female "holding keys." The key was one of the attributes of Proserpina, as also of Janus; but the latter was an Italian divinity.

[79] "Ædem Fortunæ hujusce diei." This reading, about which there has been some doubt, is supported by an ancient inscription in Orellius.

[80] "Artem toreuticen." See Note at the end of B. xxxiii.

[81] Pliny has here confounded two artists of the same name; the Polycletus who was the successor of Phidias, and was not much inferior to him in merit, and Polycletus of Argos, who lived 160 years later, and who also executed many capital works, some of which are here mentioned. It appears that Cicero, Vitruvius, Strabo, Quintilian, Plutarch, and Lucian have also confounded these two artists; but Pausanias, who is very correct in the account which he gives us of all subjects connected with works of art, was aware of the distinction; and it is from his observations that we have been enabled to correct the error into which so many eminent writers had fallen.—B.

[82] Derived from the head-dress of the statue, which had the "head ornamented with a fillet" Lucian mentions it.

[83] The "Spear-bearer."

[84] "Canon." This no doubt was *the same* statue as the Doryphoros. See Cicero, Brut. 86, 296.

they study the lineaments: so that he, of all men, is thought in one work of art to have exhausted all the resources of art. He also made statues of a man using the body-scraper,[85] and of a naked man challenging to play at dice;[86] as also of two naked boys playing at dice, and known as the Astragalizontes;[87] they are now in the atrium of the Emperor Titus, and it is generally considered, that there can be no work more perfect than this. He also executed a Mercury, which was formerly at Lysimachia; a Hercules Ageter,[88] seizing his arms, which is now at Rome; and an Artemon, which has received the name of Periphoretos.[89] Polycletus is generally considered as having attained the highest excellence in statuary, and as having perfected the toreutic[90] art, which Phidias invented. A discovery which was entirely his own, was the art of placing statues on one leg. It is remarked, however, by Varro, that his statues are all square-built,[91] and made very much after the same model.[92]

[85] Or "strigil." Visconti says that this was a statue of Tydeus purifying himself from the murder of his brother. It is represented on gems still in existence.

[86] "Talo incessentem." "Gesner (Chrestom. Plin.) has strangely explained these words as intimating a person *in the act of kicking another.* He seems to confound the words *talus* and *calx*."—Sillig, Dict. Ancient Artists.

[87] "The players at dice." This is the subject of a painting found at Herculaneum.—B.

[88] The "Leader." A name given also to Mercury, in Pausanias, B. viii. c. 31. See Sillig, Dict. Ancient Artists.

[89] "Carried about." It has been supposed by some commentators, that Artemon acquired this surname from his being carried about in a litter, in consequence of his lameness; a very different derivation has been assigned by others to the word, on the authority of Anacreon, as quoted by Heraclides Ponticus, that it was applied to Artemon in consequence of his excessively luxurious and effeminate habits of life.—B. It was evidently a recumbent figure. Ajasson compares this voluptuous person to "*le gentleman Anglais aux Indes*"—"The English Gentleman in India!"

[90] See Note 80 above.

[91] "Quadrata." Brotero quotes a passage from Celsus, B. ii. c. 1, which serves to explain the use of this term as applied to the form of a statue; "Corpus autem habilissimum quadratum est, neque gracile, neque obesum."—B. "The body best adapted for activity is square-built, and neither slender nor obese."

[92] "Ad unum exemplum." Having a sort of family likeness, similarly to our pictures by Francia the Goldsmith, and Angelica Kaufmann.

Myron of Eleutheræ,[93] who was also the pupil of Agelades, was rendered more particularly famous by his statue of a heifer,[94] celebrated in many well-known lines: so true is it, that most men owe their renown more to the genius of others, than to their own. He also made the figure of a dog,[95] a Discobolus,[96] a Perseus,[97] the Pristæ,[98] a Satyr[99] admiring a flute, and a Minerva, the Delphic Pentathletes,[1] the Pancratiastæ,[2] and a Hercules,[3] which is at the Circus Maximus, in the house of Pompeius Magnus. Erinna,[4] in her poems,[5] makes allusion to a monument which he erected to a cricket and a locust. He also executed the Apollo, which, after being taken from the Ephesians by the Triumvir Antonius, was restored by the Emperor Augustus, he having been admonished to do so in a dream. Myron appears to have been the first to give a varied development to the art,[6] having made a greater number of designs than Polycletus, and shewn more attention to symmetry. And yet, though he was very accurate in the proportions of his figures, he has neglected to give expression; besides which, he has not treated the hair and the pubes with

[93] Myron was born at Eleutheræ, in Bœotia; but having been presented by the Athenians with the freedom of their city, he afterwards resided there, and was always designated an Athenian.—B.

[94] This figure is referred to by Ovid, De Ponto, B. iv. Ep. 1, l. 34, as also by a host of Epigrammatic writers in the Greek Anthology.

[95] See the Greek Anthology, B. vi. Ep. 2.

[96] "Player with the Discus." It is mentioned by Quintilian and Lucian. There is a copy of it in marble in the British Museum, and one in the Palazzo Massimi at Rome. The Heifer of Myron is mentioned by Procopius, as being at Rome in the sixth century. No copy of it is known to exist.

[97] Seen by Pausanias in the Acropolis at Athens. [98] Or "Sawyers."

[99] In reference to the story of the Satyr Marsyas and Minerva; told by Ovid, Fasti, B. vi. l. 697, *et seq.*

[1] Persons engaged in the five contests of quoiting, running, leaping, wrestling, and hurling the javelin.

[2] Competitors in boxing and wrestling.

[3] Mentioned by Cicero In Verrem, Or. 4. This Circus was in the Eleventh Region of the city.

[4] See the Anthology, B. iii. Ep. 14, where an epigram on this subject is ascribed to Anytes or Leonides; but the Myro mentioned is a female. See Sillig, Dict. Ancient Artists.

[5] She was a poetess of Teios or Lesbos, and a contemporary of Sappho.

[6] "Multiplicasse veritatem." Sillig has commented at some length on this passage, Dict. Ancient Artists.

any greater attention than is observed in the rude figures of more ancient times.

Pythagoras of Rhegium, in Italy, excelled him in the figure of the Pancratiast[7] which is now at Delphi, and in which he also surpassed Leontiscus.[8] Pythagoras also executed the statue of Astylos,[9] the runner, which is exhibited at Olympia; that of a Libyan boy holding a tablet, also in the same place; and a nude male figure holding fruit. There is at Syracuse a figure of a lame man by him: persons, when looking at it, seem to feel the very pain of his wound. He also made an Apollo, with the serpent[10] pierced by his arrows; and a Player on the Lyre, known as the Dicæus,[11] from the fact that, when Thebes was taken by Alexander the Great, a fugitive successfully concealed in its bosom a sum of gold. He was the first artist who gave expression to the sinews and the veins, and paid more attention to the hair.

There was also another Pythagoras, a Samian,[12] who was originally a painter, seven of whose nude figures, in the Temple of Fortune of the passing day,[13] and one of an aged man, are very much admired. He is said to have resembled the last-mentioned artist so much in his features, that they could not be distinguished. Sostratus, it is said, was the pupil of Pythagoras of Rhegium, and his sister's son.

According to Duris,[14] Lysippus the Sicyonian was not the pupil[15] of any one, but was originally a worker in brass, and was first prompted to venture upon statuary by an answer that was given by Eupompus the painter; who, upon being asked which of his predecessors he proposed to take for his model, pointed to a crowd of men, and replied that it was Nature herself,

[7] See Note 2 above.

[8] There is a painter of this name mentioned in B. xxxv. c. 43. The reading is extremely doubtful.

[9] Mentioned by Plato, De Legibus, B. viii. and by Pausanias, B. vi. c. 13. He was thrice victorious at the Olympic Games.

[10] Python.

[11] From the Greek word Δικαιὸς, "just," or "trustworthy."—B.

[12] Diogenes Laertius mentions a Pythagoras, a statuary, in his life of his celebrated namesake, the founder of the great school of philosophy.—B. Pausanias, B. ix. c. 35, speaks of a Parian statuary of this name.

[13] See Note 79 above.

[14] See end of B. vii.

[15] Cicero remarks, Brut. 86, 296, "that Lysippus used to say that the Doryphoros of Polycletus was his master," implying that he considered himself indebted for his skill to having studied the above-mentioned work of Polycletus.—B.

and no artist, that he proposed to imitate. As already mentioned,[16] Lysippus was most prolific in his works, and made more statues than any other artist. Among these, is the Man using the Body-scraper, which Marcus Agrippa had erected in front of his Warm Baths,[18] and which wonderfully pleased the Emperor Tiberius. This prince, although in the beginning of his reign he imposed some restraint upon himself, could not resist the temptation, and had this statue removed to his bed-chamber, having substituted another for it at the baths: the people, however, were so resolutely opposed to this, that at the theatre they clamourously demanded the Apoxyomenos[19] to be replaced; and the prince, notwithstanding his attachment to it, was obliged to restore it.

Lysippus is also celebrated for his statue of the intoxicated Female Flute-player, his dogs and huntsmen, and, more particularly, for his Chariot with the Sun, as represented by the Rhodians.[20] He also executed a numerous series of statues of Alexander the Great, commencing from his childhood.[21] The Emperor Nero was so delighted with his statue of the infant Alexander, that he had it gilt: this addition, however, to its value, so detracted from its artistic beauty that the gold was removed, and in this state it was looked upon as still more precious, though disfigured by the scratches and seams which remained upon it, and in which the gold was still to be seen.[22] He also made the statue of Hephæstion, the friend of Alexander the Great, which some persons attribute to Polycletus, whereas that artist lived nearly a century before his time.[23] Also, the statue of Alexander at the chase, now consecrated at Delphi, the figure of a Satyr, now at Athens, and the Squadron

[16] In Chapter 17 of this Book.—B.

[17] The same subject, which, as mentioned above, had been treated by Polycletus.—B.

[18] In the Eighth Region of the City.

[19] Ἀποξυόμενος, the Greek name of the statue, signifying one "scraping himself."

[20] The head encircled with rays.

[21] The lines of Horace are well known, in which he says, that Alexander would allow his portrait to be painted by no one except Apelles, nor his statue to be made by any one except Lysippus, Epist. B. ii. Ep. 1, l. 237.—B.

[22] This expression would seem to indicate that the gold was attached to the bronze by some mechanical process, and not that the statue was covered with thin leaves of the metal.—B.

[23] This story is adopted by Apuleius, in the "Florida," B. i., who says that Polycletus was the only artist who made a statue of Alexander.

of Alexander,[24] all of whom he represented with the greatest accuracy. This last work of art, after his conquest of Macedonia,[25] Metellus conveyed to Rome. Lysippus also executed chariots of various kinds. He is considered to have contributed very greatly to the art of statuary by expressing the details of the hair,[26] and by making the head smaller than had been done by the ancients, and the body more graceful and less bulky, a method by which his statues were made to appear taller. The Latin language has no appropriate name for that "symmetry,"[27] which he so attentively observed in his new and hitherto untried method of modifying the squareness observable in the ancient statues. Indeed, it was a common saying of his, that other artists made men as they actually were, while he made them as they appeared to be. One peculiar characteristic of his work, is the finish and minuteness which are observed in even the smallest details. Lysippus left three sons, who were also his pupils, and became celebrated as artists, Laippus, Bœdas, and, more particularly, Euthycrates; though this last-named artist rivalled his father in precision rather than in elegance, and preferred scrupulous correctness to gracefulness. Nothing can be more expressive than his Hercules at Delphi, his Alexander, his Hunter at Thespiæ, and his Equestrian Combat. Equally good, too, are his statue of Trophonius, erected in the oracular cave[28] of that divinity, his numerous chariots, his Horse with the Panniers,[29] and his hounds.

Tisicrates, also a native of Sicyon, was a pupil of Euthycrates, but more nearly approaching the style of Lysippus; so much so, that several of his statues can scarcely be distinguished from those of Lysippus; his aged Theban, for example, his King Demetrius, and his Peucestes, who saved the life of Alexander the Great, and so rendered himself deserving of this honour.[30]

[24] A large group of equestrian statues, representing those of Alexander's body-guard, who had fallen at the battle of the Granicus.

[25] A.U.C. 606.

[26] See the Greek Anthology, B. iv. Ep. 14, where this subject is treated of in the epigram upon his statue of Opportunity, represented with the forelock.

[27] Which is a word of Greek origin, somewhat similar to our word "proportion."

[28] At Lebadæa in Bœotia.

[29] Hardouin seems to think that "fiscina" here means a "muzzle." The Epigram in the Greek Anthology, B. iv. c. 7, attributed to King Philip, is supposed by Hardouin to bear reference to this figure.

[30] The circumstance here referred to is related by Q. Curtius, B. ix. c. 5,

Artists, who have transmitted these details in their works, bestow wonderful encomiums upon Telephanes, the Phocæan, a statuary but little known, they say, because he lived in Thessaly, where his works remained concealed; according to their account, however, he is quite equal to Polycletus, Myron, and Pythagoras. They more particularly commend his Larissa, his Spintharus, the pentathlete,[31] and his Apollo. Others, however, assign another reason for his being so little known; it being owing, they think, to his having devoted himself to the studios established by Kings Xerxes and Darius.

Praxiteles, who excelled more particularly in marble, and thence acquired his chief celebrity, also executed some very beautiful works in brass, the Rape of Proserpine, the Catagusa,[32] a Father Liber,[33] a figure of Drunkenness, and the celebrated Satyr,[34] to the Greeks known as "Periboetos."[35] He also executed the statues, which were formerly before the Temple[36] of Good Fortune, and the Venus, which was destroyed by fire, with the Temple of that goddess, in the reign of Claudius, and was considered equal to his marble statue of Venus,[37] so celebrated throughout the world. He also executed a Stephanusa,[38] a Spilumene,[39] an Œnophorus,[40] and two figures of Harmodius and Aristogiton, who slew the tyrants; which last, having been taken away from Greece by Xerxes, were restored to the Athenians on

as having occurred at the siege of the city of the Oxydracæ; according to other historians, however, it is said to have taken place at a city of the Malli.—B.

[31] See Note 1, above.

[32] Κατάγουσα; a figure of Ceres, probably, "leading back" Proserpine from the domains of Pluto. Sillig, however, dissents from this interpretation; Dict. Ancient Artists.

[33] Or Bacchus.

[34] See Pausanias, B. i. c. 20. Sillig says, "Pliny seems to have confounded two Satyrs made by Praxiteles, for that here named stood alone in the 'Via Tripodum' at Athens, and was quite different from the one which was associated with the figure of Intoxication, and that of Bacchus."—Dict. Ancient Artists.

[35] "Much-famed." Visconti is of opinion that the Reposing Satyr, formerly in the Napoleon Museum at Paris, was a copy of this statue. Winckelmann is also of the same opinion.

[36] In the Second Region of the city. According to Cicero, in Verrem. vi., they were brought from Achaia by L. Mummius, who took them from Thespiæ, A.U.C. 608.

[37] See B. xxxvi. c. 4.

[38] A woman plaiting garlands.

[39] A soubriquet for an old hag, it is thought.

[40] A female carrying wine.

the conquest of Persia by Alexander the Great.[41] He also made the youthful Apollo, known as the "Sauroctonos,"[42] because he is aiming an arrow at a lizard which is stealing towards him. There are greatly admired, also, two statues of his, expressive of contrary emotions—a Matron in tears, and a Courtesan full of gaiety: this last is supposed to be a likeness of Phryne, and it is said that we can detect in her figure the love of the artist, and in the countenance of the courtesan the promised reward.[43]

His kindness of heart, too, is witnessed by another figure; for in a chariot and horses which had been executed by Calamis,[44] he himself made the charioteer, in order that the artist, who excelled in the representation of horses, might not be considered deficient in the human figure. This last-mentioned artist has executed other chariots also, some with four horses, and some with two; and in his horses he is always unrivalled. But that it may not be supposed that he was so greatly inferior in his human figures, it is as well to remark that his Alcmena[45] is equal to any that was ever produced.

Alcamenes,[46] who was a pupil of Phidias, worked in marble and executed a Pentathlete in brass, known as the "Encrinomenos."[47] Aristides, too, who was the scholar of Polycletus, executed chariots in metal with four and two horses. The

[41] According to Valerius Maximus, B. ii. s. 10, these statues were restored, not by Alexander, but by his successor Seleucus.—B. Sillig makes the following remark upon this passage—"Pliny here strangely confounds the statues of Harmodius and Aristogiton, made by Praxiteles, with other figures of those heroes of a much more ancient date, made by Antenor."

[42] From σαυρὸς, a "lizard," and κτείνω, "to kill." This statue is described by Martial, B. xiv. Ep. 172, entitled "Sauroctonos Corinthius."—B. Many fine copies of it are still in existence, and Winckelmann is of opinion that the bronze at the Villa Albani is the original. There are others at the Villa Borghese and in the Vatican.

[43] In her worthless favours, probably. Praxiteles was a great admirer of Phryne, and inscribed on the base of this statue an Epigram of Simonides, preserved in the Greek Anthology, B. iv. Ep. 12. She was also said to have been the model of his Cnidian Venus.

[44] This artist is mentioned also by Cicero, Pausanias, Propertius, and Ovid, the two latter especially remarking the excellence of his horses.—B. See B. xxxiii. c. 55.

[45] The mother of Hercules.—B.

[46] See B. xxxvi. c. 4. Having now given an account of the artists most distinguished for their genius, Pliny proceeds to make some remarks upon those who were less famous, in alphabetical order.—B.

[47] The "highly approved."

Leæna[48] of Amphicrates[49] is highly commended. The courtesan[50] Leæna, who was a skilful performer on the lyre, and had so become acquainted with Harmodius and Aristogiton, submitted to be tortured till she expired, rather than betray their plot for the extermination of the tyrants.[51] The Athenians, being desirous of honouring her memory, without at the same time rendering homage to a courtesan, had her represented under the figure of the animal whose name she bore;[52] and, in order to indicate the cause of the honour thus paid her, ordered the artist to represent the animal without a tongue.[53]

Bryaxis executed in brass statues of Æsculapius and Seleucus;[54] Bœdas[55] a figure in adoration; Baton, an Apollo and a Juno, which are in the Temple of Concord[57] at Rome.

Ctesilaüs[58] executed a statue of a man fainting from his wounds, in the expression of which may be seen how little life remains;[59] as also the Olympian Pericles,[60] well worthy of its title: indeed, it is one of the marvellous adjuncts of this art, that it renders men who are already celebrated even more so.

Cephisodotus[61] is the artist of an admirable Minerva, now erected in the port of Athens; as also of the altar before the

[48] Or "Lioness." See B. vii. c. 23.

[49] The reading is doubtful here. "Iphicrates" and "Tisicrates" are other readings.

[50] The same story is related by Athenæus, B. xiii., and by Pausanias.—B.

[51] Pisistratus and his sons, Hippias and Hipparchus.

[52] A lioness.

[53] She having bitten off her tongue, that she might not confess.

[54] Hardouin has offered a plausible conjecture, that for the word "Seleucum," we should read "Salutem," as implying that the two statues executed by Bryaxis were those of Æsculapius and the Goddess of Health.—B.

[56] Already mentioned as a son of Lysippus.

[57] In the Eighth Region of the City.

[58] This reading appears preferable to "Cresilas," though the latter is supported by the Bamberg MS.

[59] Ajasson quotes here the beautiful words of Virgil—"Et dulces moriens reminiscitur Argos"—"Remembers his lov'd Argos, as he dies."

[60] Dalechamps supposes that Pericles was here represented in the act of addressing the people; Hardouin conceives that this statue received its title from the thunder of his eloquence in debate, or else from the mighty power which he wielded both in peace and war, or some of the other reasons which Plutarch mentions in the Life of Pericles.—B.

[61] It is doubtful to which of the artists of this name he alludes, the elder or the younger Cephisodotus, the son of Praxiteles. Sillig inclines to think the former—Dict. Ancient Artists.

Temple of Jupiter Servator,[62] at the same place, to which, indeed, few works are comparable.

Canachus[63] executed a nude Apollo, which is known as the "Philesian:"[64] it is at Didymi,[65] and is composed of bronze that was fused at Ægina. He also made a stag with it, so nicely poised on its hoofs, as to admit of a thread being passed beneath. One[66] fore-foot, too, and the alternate hind-foot are so made as firmly to grip the base, the socket being[67] so indented on either side, as to admit of the figure being thrown at pleasure upon alternate feet. Another work of his was the boys known as the "Celetizontes."[68]

Chæreas made statues of Alexander the Great and of his father Philip. Desilaüs[69] made a Doryphoros[70] and a wounded Amazon; and Demetrius[71] a statue of Lysimache, who was priestess of Minerva sixty-four years. This statuary also made the Minerva, which has the name of Musica,[72] and so called because the dragons on its Gorgon's head vibrate at the sound of the lyre; also an equestrian statue of Simon, the first writer

[62] The "Deliverer." [63] The elder Canachus, probably.

[64] The "Lovely." Brotero says that this is believed to be the Florentine Apollo of the present day. It stood in the Temple at Didymi, near Miletus, until the return of Xerxes from his expedition against Greece, when it was removed to Ecbatana, but was afterwards restored by Seleucus Nicator. [65] See B. v. c. 31.

[66] "Alterno morsu calce digitisque retinentibus solum, ita vertebrato dente utrisque in partibus ut a repulsu per vices resiliat." He seems to mean that the statue is so made as to be capable of standing either on the right fore foot and the left hind foot, or on the left fore foot and the right hind foot, the conformation of the under part of the foot being such as to fit into the base.

[67] The following are the words of the original: "Ita vertebrato dente utrisque in partibus." I confess myself unable to comprehend them, nor do I think that they are satisfactorily explained by Hardouin's comment.—B.

[68] The "Riders on horseback."

[69] It is supposed by Sillig, Dict. Ancient Artists, that this is the same person as the Cresilas, Ctesilas, or Ctesilaüs, before mentioned in this Chapter, and that Pliny himself has committed a mistake in the name.

[70] A figure of a man "brandishing a spear." See Note 83 above.

[71] He is mentioned by Quintilian as being more attentive to exactness than to beauty; also by Diogenes Laertius, B. v. c. 85. Sillig supposes that he flourished in the time of Pericles. Pausanias, B. i., speaks of his Lysimache.

[72] The Athenians in their flattery, as we learn from Seneca, expressed a wish to affiance their Minerva Musica to Marc Antony. His reply was, that he would be happy to take her, but with one thousand talents by way of portion.

on the art of equitation.[73] Dædalus,[74] who is highly esteemed as a modeller in clay, made two brazen figures of youths using the body-scraper;[75] and Dinomenes executed figures of Protesilaüs[76] and Pythodemus the wrestler.

The statue of Alexander Paris is the work of Euphranor:[77] it is much admired, because we recognize in it, at the same moment, all these characteristics; we see him as the umpire between the goddesses, the paramour of Helen, and yet the slayer of Achilles. We have a Minerva, too, by Euphranor, at Rome, known as the "Catulina," and dedicated below the Capitol, by Q. Lutatius;[78] also a figure of Good Success,[79] holding in the right hand a patera, and in the left an ear of corn and a poppy. There is also a Latona by him, in the Temple of Concord,[80] with the new-born infants Apollo and Diana in her arms. He also executed some brazen chariots with four and two horses, and a Cliduchus[81] of beautiful proportions; as also two colossal statues, one representing Virtue, the other Greece;[82] and a figure of a female lost in wonder and adoration: with statues of Alexander and Philip in chariots with four horses. Eutychides executed an emblematic figure of the Eurotas,[83] of which it has been frequently remarked, that the work of the artist appears more flowing than the waters even of the river.[84]

Hegias[85] is celebrated for his Minerva and his King Pyrrhus, his youthful Celetizontes,[86] and his statues of Castor and Pollux,

[73] He is mentioned by Xenophon, according to whom, he dedicated the brazen statue of a horse in the Eleusinium at Athens. He was probably an Athenian by birth.

[74] Son of Patroclus, who is previously mentioned as having lived in the 95th Olympiad. He was a native of Sicyon, and flourished about B.C. 400. Several works of his are also mentioned by Pausanias.

[75] Or "strigil." See Note 19 above. [76] The first Grecian slain at Troy.

[77] Famous also as a painter. See B. xxxv. c. 40.—B. Paris, the son of Priam, was known by both of these names. [78] Q. Lutatius Catulus.

[79] "Bonus Eventus;" Varro, de Re Rustica, B. i. c. 1, applies this term to one of the deities that preside over the labours of the agriculturist. His temple was situate near the Baths of Agrippa.—B.

[80] In the Eighth Region of the City. [81] See Note 78, page 171.

[82] Pausanias, B. vi., speaks of a statue of Ancient Greece, but the name of the artist is not mentioned.—B. [83] See B. iv. c. 8.

[84] Brotero informs us, from Ficoroni, that there is a gem still in existence on which this design of Eutychides is engraved.—B.

[85] Thiersch considers him to be identical with the elder Hegesias. He is mentioned also by Pausanias, B. viii. c. 42. [86] See Note 68, above.

before the Temple of Jupiter Tonans:[87] Hegesias,[88] for his Hercules, which is at our colony of Parium.[89] Of Isidotus we have the Buthytes.[90]

Lycius was the pupil[91] of Myron: he made a figure representing a boy blowing a nearly extinguished fire, well worthy of his master, as also figures of the Argonauts. Leochares made a bronze representing the eagle carrying off Ganymede: the eagle has all the appearance of being sensible of the importance of his burden, and for whom he is carrying it, being careful not to injure the youth with his talons, even through the garments.[92] He executed a figure, also, of Autolycus,[93] who had been victorious in the contests of the Pancratium, and for whom Xenophon wrote his Symposium;[94] the figure, also, of Jupiter Tonans in the Capitol, the most admired of all his works; and a statue of Apollo crowned with a diadem. He executed, also, a figure of Lyciscus, and one of the boy Lagon,[95] full of the archness and low-bred cunning of the slave. Lycius also made a figure of a boy burning perfumes.

We have a young bull by Menæchmus,[96] pressed down beneath a man's knee, with its neck bent back:[97] this Menæch-

[87] Dedicated by Augustus on the Capitoline Hill, in the Eighth Region of the City.

[88] Sillig distinguishes three artists of this name.

[89] See B. v. c. 40, and B. vii. c. 2. [90] The "Sacrificers of the ox."

[91] The son also.

[92] Martial expresses the same idea in his Epigram, B. i. Ep. 7; but he does not refer to this statue.—B. Two copies of this Ganymede are still in existence at Rome.

[93] Pausanias informs us, B. i. and B. ix., that he saw this statue in the Prytanæum of Athens.—B. Autolycus obtained this victory about the 89th or 90th Olympiad.

[94] It was in honour of a victory gained by him in the *pentathlon* at the Great Panathenæa, that Callias gave the Symposium described by Xenophon.

[95] Martial, B. ix. Ep. 51, where he is pointing at the analogy between his poems and the works of the most eminent sculptors, probably refers to this statue:—

"Nos facimus Bruti puerum, nos Lagona vivum."—B.

The reading "Lagonem," or "Langonem," certainly seems superior to that of the Bamberg MS.—"Mangonem," a "huckster."

[96] For some further mention of him, see end of B. iv.

[97] Delafosse has pointed out the resemblance between this statue and one of the works of Michael Angelo, representing David kneeling on Goliath, and pressing back the giant's neck.—B.

mus has also written a treatise on his art. Naucydes[98] is admired for a Mercury, a Discobolus,[99] and a Man sacrificing a Ram. Naucerus made a figure of a wrestler panting for breath; Niceratus, an Æsculapius and Hygeia,[1] which are in the Temple of Concord at Rome. Pyromachus represented Alcibiades, managing a chariot with four horses: Polycles made a splendid statue of Hermaphroditus; Pyrrhus, statues of Hygeia and Minerva; and Phanis, who was a pupil of Lysippus, an Epithyusa.[2]

Stypax of Cyprus acquired his celebrity by a single work, the statue of the Splanchnoptes;[3] which represents a slave of the Olympian Pericles, roasting entrails and kindling the fire with his breath. Silanion made a statue in metal of Apollodorus, who was himself a modeller, and not only the most diligent of all in the study of this art, but a most severe criticizer of his own works, frequently breaking his statues to pieces when he had finished them, and never able to satisfy his intense passion for the art—a circumstance which procured him the surname of "the Madman." Indeed, it is this expression which he has given to his works, which represent in metal embodied anger rather than the lineaments of a human being. The Achilles, also, of Silanion is very excellent, and his Epistates[4] exercising the Athletes. Strongylion[5] made a figure of an Amazon, which, from the beauty of the legs, was known as the "Eucnemos,"[6] and which Nero used to have carried about with him in his travels. Strongylion was the artist,

[98] A native of Argos, who flourished in the 95th Olympiad. He was the son of Motho, and brother and instructor of the younger Polycletus of Argos. Several of his statues are mentioned by Pausanias and Tatian.

[99] Ajasson thinks that three statues in the Royal Museum at Paris may possibly be copies of this Discobolus of Naucydes.

[1] The Goddess of Health, and daughter of Æsculapius. Niceratus was a native of Athens, and is also mentioned by Tatian.

[2] A "Female sacrificing." The reading is very doubtful.

[3] The "Man cooking entrails." For some further account of this statue, see B. xxii. c. 20. This artist is unknown, but Thiersch suggests that he may have been the father of Cleomenes, whose name appears on the base of the Venus de Medicis.

[4] The master of the Gymnasium.

[5] He is twice mentioned by Pausanias: more particularly for the excellence of his horses and oxen. His country is unknown.

[6] "The beautiful-legged." This statue has been mentioned at the end of Chapter 18, as having been greatly admired by Nero.

also, of a youthful figure, which was so much admired by Brutus of Philippi, that it received from him its surname.[7]

Theodorus of Samos,[8] who constructed the Labyrinth,[9] cast his own statue in brass; which was greatly admired, not only for its resemblance, but for the extreme delicacy of the work. In the right hand he holds a file, and with three fingers of the left, a little model of a four-horse chariot, which has since been transferred to Præneste:[10] it is so extremely minute, that the whole piece, both chariot and charioteer, may be covered by the wings of a fly, which he also made with it.

Xenocrates[11] was the pupil of Ticrates, or, as some say, of Euthycrates: he surpassed them both, however, in the number of his statues, and was the author of some treatises on his art.

Several artists have represented the battles fought by Attalus and Eumenes with the Galli;[12] Isigonus, for instance, Pyromachus, Stratonicus, and Antigonus,[13] who also wrote some works in reference to his art. Boëthus,[14] although more celebrated for his works in silver, has executed a beautiful figure of a child strangling a goose. The most celebrated of all the works, of which I have here spoken, have been dedicated, for some time past, by the Emperor Vespasianus in the Temple of Peace,[15] and other public buildings of his. They had before

[7] This, it is supposed, is the statue to which Martial alludes in his Epigram, mentioned in Note 95 above.—B.

[8] There were two artists of this name, both natives of Samos. The present is the elder Theodorus, and is mentioned by Pausanias as having been the first to fuse iron for statues. He is spoken of by numerous ancient authors, and by Pliny in B. vii. c. 57, B. xxxv. c. 45, and B. xxxvi. c. 19, where he is erroneously mentioned as a Lemnian.

[9] At Crete: Athenagoras mentions him in conjunction with Dædalus.

[10] See B. vii. c. 21. Hardouin thinks that this bears reference to the conquest of the younger Marius by Sylla, mentioned in B. xxxiii. c. 5. Müller and Meyer treat this story of the brazen statue as a fiction.

[11] Probably the same author that is mentioned at the end of B. xxxiii. See also B. xxxv. c. 36.

[12] The Galli here spoken of were a tribe of the Celts, who invaded Asia Minor, and afterwards uniting with the Greeks, settled in a portion of Bithynia, which hence acquired the name of Gallo-Græcia or Galatia.—B.

[13] See end of B. xxxiii. Attalus I., king of Pergamus, conquered the Galli, B.C. 239. Pyromachus has been mentioned a few lines before, and Stratonicus, in B. xxxiii. c. 55, also by Athenæus.

[14] A native of Carthage. A work of his is mentioned by Cicero, In Verrem 4, 14, and in the Culex, l. 66, attributed to Virgil. See also B. xxxiii. c. 55.

[15] In the Eighth Region of the City.

been forcibly carried off by Nero,[16] and brought to Rome, and arranged by him in the reception-rooms of his Golden Palace.[17]

In addition to these, there are several other artists, of about equal celebrity, but none of whom have produced any first-rate works; Ariston,[18] who was principally employed in chasing silver, Callides, Ctesias, Cantharus of Sicyon,[19] Diodorus, a pupil of Critias, Deliades, Euphorion, Eunicus,[20] and Hecatæus,[21] all of them chasers in silver; Lesbocles, also, Prodorus, Pythodicus, and Polygnotus,[22] one of the most celebrated painters; also two other chasers in silver, Stratonicus,[23] and Scymnus, a pupil of Critias.

I shall now enumerate those artists who have executed works of the same class:—Apollodorus,[24] for example, Antrobulus, Asclepiodorus, and Aleuas, who have executed statues of philosophers. Apellas[25] has left us some figures of females in the act of adoration; Antignotus, a Perixyomenos,[26] and figures of the Tyrannicides, already mentioned. Antimachus and Athenodorus made some statues of females of noble birth; Aristodemus[27] executed figures of wrestlers, two-horse chariots with the charioteers, philosophers, aged women, and a statue of King Seleucus:[28] his Doryphoros,[29] too, possesses his characteristic gracefulness.

There were two artists of the name of Cephisodotus:[30] the

[16] We are informed by Pausanias, B. x., that Nero carried off from Greece 500 bronze statues of gods and men.—B.

[17] See B. xxxvi. c. 24.

[18] See B. xxxv. c. 55.

[19] Mentioned by Pausanias, B. vi. Many of these artists are altogether unknown.

[20] See B. xxxiii. c. 55.

[21] See B. xxxiii. c. 55.

[22] See B. xxxiii. c. 56, and B. xxxv. c. 35.

[23] Probably the same artist that has been mentioned in the preceding page.

[24] The artist already mentioned as having been represented by Silanion.

[25] Pausanias, B. iii., speaks of his statue of Cynisca, a female who was victor at the Olympic games. Indeed, the victors at these games were frequently represented in a posture resembling that of adoration.

[26] A man "scraping himself," probably. See Note 19, page 175. The "Tyrannicides" were Harmodius and Aristogiton.

[27] Tatian mentions an artist of this name.

[28] Sillig thinks that this was Seleucus, king of Babylon, B.C. 312.

[29] See Note 70 above

[30] Pausanias, B. viii., gives an account of a statue of Diana, made of Pentelican marble, by this Cephisodotus, a native of Athens; he is supposed to have flourished in the 102nd Olympiad. In the commencement

earlier of them made a figure of Mercury nursing Father Liber[31] when an infant; also of a man haranguing, with the hand elevated, the original of which is now unknown. The younger Cephisodotus executed statues of philosophers. Colotes,[32] who assisted Phidias in the Olympian Jupiter, also executed statues of philosophers; the same, too, with Cleon,[33] Cenchramis, Callicles,[34] and Cepis. Chalcosthenes made statues of comedians and athletes. Daïppus[35] executed a Perixyomenos.[36] Daïphron, Democritus,[37] and Dæmon made statues of philosophers.

Epigonus, who has attempted nearly all the above-named classes of works, has distinguished himself more particularly by his Trumpeter, and his Child in Tears, caressing its murdered mother. The Woman in Admiration, of Eubulus, is highly praised; and so is the Man, by Eubulides,[38] reckoning on his Fingers. Micon[39] is admired for his athletes; Menogenes, for his four-horse chariots. Niceratus,[40] too, who attempted every kind of work that had been executed by any other artist, made statues of Alcibiades and of his mother Demarate,[41] who is represented sacrificing by the light of torches.

of this Chapter, Pliny has enumerated a Cephisodotus among the artists of the 120th Olympiad.—B.

[31] Bacchus.

[32] The elder artist of this name. See B. xxxv. c. 34.

[33] A native of Sicyon; Pausanias, B. v. cc. 17, 21, informs us that Cleon made a statue of Venus and two statues of Jupiter; he also mentions others of his works in B. vi.—B.

[34] A native of Megara. He made a statue of Diagoras the pugilist, who was victor at the Olympic games, B.C. 464. He is mentioned also by Pausanias.

[35] Probably the same with the "Laïppus" mentioned in the early part of this Chapter. Sillig, Dict. Ancient Artists, considers "Daïppus" to be the right name.

[36] See Note 26 above.

[37] A native of Sicyon, and pupil of Pison, according to Pausanias, B. vi. c. 3. He flourished about the 100th Olympiad.

[38] Works of his at Athens are mentioned by Pausanias, B. i. c. 2, who also states that he was father of Euchir, the Athenian.

[39] A statuary of Syracuse, son of Niceratus. He made two statues of Hiero II., king of Syracuse, who died B.C. 215. He must not be confounded with the painter and statuary of the same name, mentioned in B. xxxiii. c. 56, and B. xxxv. c. 35. He is mentioned also by Pausanias.

[40] An Athenian, son of Euctemon. He is mentioned also by Tatian, and is supposed by Sillig to have flourished about B.C. 420.

[41] Called Dinomache by Plutarch.

Tisicrates[42] executed a two-horse chariot in brass, in which Piston afterwards placed the figure of a female. Piston also made the statues of Mars and Mercury, which are in the Temple of Concord at Rome. No one can commend Perillus ;[43] more cruel even than the tyrant Phalaris[44] himself, he made for him a brazen bull, asserting that when a man was enclosed in it, and fire applied beneath, the cries of the man would resemble the roaring of a bull: however, with a cruelty in this instance marked by justice, the experiment of this torture was first tried upon himself. To such a degree did this man degrade the art of representing gods and men, an art more adapted than any other to refine the feelings! Surely so many persons had not toiled to perfect it in order to make it an instrument of torture! Hence it is that the works of Perillus are only preserved, in order that whoever sees them, may detest the hands that made them.

Sthennis[45] made the statues of Ceres, Jupiter, and Minerva, which are now in the Temple of Concord; also figures of matrons weeping, adoring, and offering sacrifice; Simon[46] executed figures of a dog and an archer. Stratonicus,[47] the chaser in silver, made some figures of philosophers; and so did both of the artists named Scopas.[48]

The following artists have made statues of athletes, armed men, hunters, and sacrificers—Baton,[49] Euchir,[50] Glaucides,[51] Heliodorus,[52] Hicanus, Leophon, Lyson,[53] Leon, Menodorus,[54]

[42] Already mentioned as a successful pupil of Lysippus.

[43] He was probably a native of Agrigentum, and flourished about B.C. 560. The brazen bull of Perillus, and his unhappy fate, are recorded by many of the classical writers, among others by Valerius Maximus, B. ix. cc. 2, 9, and by Ovid, Art. Am. B. i. ll. 653-4.—B.

[44] See B. vii. c. 57.

[45] Mentioned at the commencement of this Chapter.

[46] A statuary of Ægina, mentioned also by Pausanias, B. v. c. 27, in connexion with Dionysius of Argos. He flourished about Olymp. 76.

[47] Already mentioned in B. xxxiii. c. 55, and previously in this Chapter.

[48] "Scopas uterque." Sillig, Dict. Ancient Artists, expresses an opinion that these words are an interpolation; but in his last edition of Pliny, he thinks with M. Ian, that some words are wanting, expressive of the branch in which these artists excelled. See also B. xxxvi. cc. 5, 14.

[49] He is previously mentioned in this Chapter. See p. 179.

[50] An Athenian artist, son of Eubulides. He is also mentioned by Pausanias.

[51] A Lacedæmonian artist, also mentioned by Pausanias.

[52] See B. xxxvi. c. 4.

[53] Mentioned also by Pausanias, B. i. c. 3.

[54] Probably *not* the Athenian statuary mentioned by Pausanias, B. ix. c. 7. See Sillig, Dict. Ancient Artists.

Myagrus,[55] Polycrates, Polyidus,[56] Pythocritus, Protogenes, a famous painter, whom we shall have occasion to mention hereafter;[57] Patrocles, Pollis, Posidonius[59] the Ephesian, who was also a celebrated chaser in silver; Periclymenus,[60] Philon,[61] Symenus, Timotheus,[62] Theomnestus,[63] Timarchides,[64] Timon, Tisias, and Thrason.[65]

But of all these, Callimachus is the most remarkable, on account of his surname. Being always dissatisfied with himself, and continually correcting his works, he obtained the name of "Catatexitechnos;"[66] thus affording a memorable example of the necessity of observing moderation even in carefulness. His Laconian Female Dancers, for instance, is a most correct performance, but one in which, by extreme correctness, he has effaced all gracefulness. It has been said, too, that Callimachus was a painter also. Cato, in his expedition against Cyprus,[67] sold all the statues that he found there, with the exception of one of Zeno; in which case he was influenced, neither by the value of the metal nor by its excellence as a work of art, but by the fact that it was the statue of a philosopher. I only mention this circumstance casually, that an example[68] so little followed, may be known.

While speaking of statues, there is one other that should not be omitted, although its author is unknown, that of Her-

[55] A native of Phocis, mentioned also by Vitruvius.

[56] Also a Dithyrambic poet; mentioned by Diodorus Siculus.

[57] In B. xxxv. c. 36.

[59] See B. xxxiii. c. 55.

[60] Mentioned by Tatian as having made the statue of Eutychis. See Pliny, B. vii. c. 3.

[61] He executed a statue of Hephæstion; and an inscription relative to him is preserved by Wheler, Spon, and Chishull.

[62] See B. xxxvi. c. 4.

[63] A native of Sardis; mentioned by Pausanias.

[64] An Athenian, mentioned also by Pausanias.

[65] Strabo mentions some of his productions in the Temple at Ephesus.

[66] "Fritterer away of his works." He was also an engraver on gold, and a painter. He is spoken of in high terms by Vitruvius, Pausanias, and Dionysius of Halicarnassus.

[67] We have an account of Cato's honourable conduct on this occasion in Plutarch.—B. See also B. xxix. c. 30.

[68] "Inane exemplum." Hardouin thinks that this is said in reference to his neglect of the example set by his grandfather, Cato the Censor, who hated the Greeks. See B. vii. c. 31.

cules clothed in a tunic,[69] the only one represented in that costume in Rome: it stands near the Rostra, and the countenance is stern and expressive of his last agonies, caused by that dress. There are three inscriptions on it; the first of which states that it had formed part of the spoil obtained by L. Lucullus[70] the general; the second, that his son, while still a minor, dedicated in accordance with a decree of the Senate; the third, that T. Septimius Sabinus, the curule ædile, had it restored to the public from the hands of a private individual. So vast has been the rivalry caused by this statue, and so high the value set upon it.

### CHAP. 20.—THE DIFFERENT KINDS OF COPPER AND ITS COMBINATIONS. PYROPUS. CAMPANIAN COPPER.

We will now return to the different kinds of copper, and its several combinations. In Cyprian copper we have the kind known as "coronarium,"[71] and that called "regulare,"[71*] both of them ductile. The former is made into thin leaves, and, after being coloured with ox-gall,[72] is used for what has all the appearance of gilding on the coronets worn upon the stage. The same substance, if mixed with gold, in the proportion of six scruples of gold to the ounce, and reduced into thin plates, acquires a fiery red colour, and is termed "pyropus."[73] In other mines again, they prepare the kind known as "regulare," as also that which is called "caldarium."[74] These differ from each other in this respect, that, in the latter, the metal is only fused, and breaks when struck with the hammer, whereas the "regulare" is malleable, or ductile,[75] as some call it, a property which belongs naturally to all the copper of Cyprus. In the case, however, of all the other mines, this difference between bar copper and cast brass is produced by artificial means. All

[69] In the poisoned garment, which was the eventual cause of his death.—B.

[70] The general who conducted the war against Mithridates.—B.

[71] See B. xxxiii. c. 46. "Chaplet" copper.

[71*] "Bar" copper, or "malleable."

[72] It is very improbable that this effect could be produced by the cause here assigned; but without a more detailed account of the process employed, we cannot explain the change of colour.—B.

[73] Πυρωπὸς, "sparkling like fire." Similar to, if not identical with, our tinsel.

[74] "Cast brass."

[75] See Beckmann, Hist. Inv. Vol. I. p. 415. *Bohn's Edition.*

the ores, in fact, will produce bar or malleable copper when sufficiently melted and purified by heat. Among the other kinds of copper, the palm of excellence is awarded to that of Campania,[76] which is the most esteemed for vessels and utensils. This last is prepared several ways. At Capua it is melted upon fires made with wood, and not coals, after which it is sprinkled with cold water and cleansed through a sieve made of oak. After being thus smelted a number of times, Spanish silver-lead is added to it, in the proportion of ten pounds of lead to one hundred pounds of copper; a method by which it is rendered pliable, and made to assume that agreeable colour which is imparted to other kinds of copper by the application of oil and the action of the sun. Many parts, however, of Italy, and the provinces, produce a similar kind of metal; but there they add only eight pounds of lead, and, in consequence of the scarcity of wood, melt it several times over upon coals. It is in Gaul more particularly, where the ore is melted between red-hot stones, that the difference is to be seen that is produced by these variations in the method of smelting. Indeed, this last method scorches the metal, and renders it black and friable. Besides, they only melt it twice; whereas, the oftener this operation is repeated, the better in quality it becomes.

(9.) It is also as well to remark that all copper fuses best when the weather is intensely cold. The proper combination for making statues and tablets is as follows: the ore is first melted; after which there is added to the molten metal one third part of second-hand[77] copper, or in other words, copper that has been in use and bought up for the purpose. For it is a peculiarity of this metal that when it has been some time in use, and has been subject to long-continued friction, it becomes seasoned, and subdued, as it were, to a high polish. Twelve pounds and a half of silver-lead are then added to every hundred pounds of the fused metal. There is also a combination of copper, of a most delicate nature, "mould-copper,"[77*] as it is called; there being added to the metal one

[76] In the former Editions the whole of the next ten lines, from this word down to "sun" is omitted. It is evident that it has been left out by accident, in consequence of the recurrence of the word "Campano." The hiatus has been supplied from the Bamberg MS., and the reading is supported by the text of Isidorus, Orig. B. xvi. c. 20, s. 9.

[77] "Collectanei." [77*] "Formalis."

tenth part of lead[78] and one twentieth of silver-lead, this combination being the best adapted for taking the colour known as "Græcanicus."[79] The last kind is that known as "ollaria,"[80] from the vessels that are made of it: in this combination three or four pounds of silver-lead[81] are added to every hundred pounds of copper. By the addition of lead to Cyprian copper, the purple tint is produced that we see upon the drapery of statues.

### CHAP. 21.—THE METHOD OF PRESERVING COPPER.

Copper becomes covered with verdigris more quickly when cleaned than when neglected, unless it is well rubbed with oil. It is said that the best method of preserving it is with a coating of tar. The custom of making use of copper for monuments, which are intended to be perpetuated, is of very ancient date: it is upon tablets of brass that our public enactments are engraved.

### CHAP 22. (10.)—CADMIA.

The ores of copper furnish a number of resources[82] that are employed in medicine; indeed, all kinds of ulcers are healed thereby with great rapidity. Of these, however, the most useful is cadmia.[83] This substance is formed artificially,

[78] "Plumbi nigri"—"black lead," literally, but not what *we* mean by that name.

[79] The "Grecian" colour. It does not appear to have been identified, nor does it appear what it has to do with moulds.

[80] "Pot" copper, or brass.

[81] Beckmann is of opinion that this "plumbum argentarium" was a mixture of equal parts of tin and lead. Hist. Inv. Vol. II. p. 220. *Bohn's Edition.*

[82] Most of these preparations are in reality highly dangerous. Oxides, however, or salts of copper, have been employed internally with success, acting by alvine evacuation and by vomiting. The *Crocus Veneris* of the old chemists was an oxide of copper. It is still used by the peasants of Silesia, Ajasson says.

[83] It is obvious that the "cadmia" here described must be an essentially different substance from the "cadmia" mentioned in the second Chapter of this Book, that being a natural production, possibly calamine or hydrosilicate or carbonate of zinc; while the "cadmia" of this Chapter is a furnace-calamine, a product of the fusion of the ore of copper, or zinc.—B. It is evident, too, that copper ores, impregnated with zinc or calamine, also passed under this name. See Beckmann, Hist. Inv. Vol. II. pp. 33—35, *Bohn's Edition*, where this subject is discussed at considerable length: also the treatise by Delafosse, in Lemaire's Edition of Pliny.

beyond a doubt, in the furnaces, also, where they smelt silver, but it is whiter and not so heavy, and by no means to be compared with that from copper. There are several kinds of it. For, as the mineral itself, from which it is prepared artificially, so necessary in fusing copper ore, and so useful in medicine, has the name of "cadmia,"[84] so also is it found in the smelting-furnaces, where it receives other names, according to the way in which it is formed. By the action of the flame and the blast, the more attenuated parts of the metal are separated, and become attached, in proportion to their lightness, to the arched top and sides of the furnace. These flakes are the thinnest near the exterior opening of the furnace, where the flame finds a vent, the substance being called "capnitis;"[85] from its burnt appearance and its extreme lightness it resembles white ashes. The best is that which is found in the interior, hanging from the arches of the chimney, and from its form and position named "botryitis."[86] It is heavier than the first-mentioned kind, but lighter than those which follow. It is of two different colours: the least valuable is ash-coloured, the better kind being red, friable, and extremely useful as a remedy for affections of the eyes.

A third kind of cadmia is that found on the sides of the furnace, and which, in consequence of its weight, could not reach the arched vaults of the chimney. This species is called "placitis,"[87] in reference to its solid appearance, it presenting a plane surface more like a solid crust than pumice, and mottled within. Its great use is, for the cure of itch-scab, and for making wounds cicatrize. Of this last there are two varieties, the "onychitis," which is almost entirely blue on the exterior, and spotted like an onyx within; and the "ostracitis,"[88] which is quite black and more dirty than the others, but particularly useful for healing wounds. All the species of cadmia are of the best quality from the furnaces of Cyprus. When used in medicine it is heated a

[84] The metal known to us as "cadmium" was discovered by Professor Stromeyer in 1818: it is either associated in its ores with zinc, or forms a native sulphuret.

[85] "Smoky residue." None of these substances formed in smelting are preserved for medicinal purposes at the present day. Tutty is an impure oxide of zinc.

[86] "Cluster residue." From its resemblance to a bunch of grapes.

[87] "Caked residue."

[88] "Shell-formed residue."

second time upon a fire of pure charcoal, and when duly incinerated, is quenched in Aminean[89] wine, if required for making plasters, but in vinegar, if wanted for the cure of itch-scab. Some persons first pound it, and then burn it in earthen pots; which done, they wash it in mortars and then dry it.

Nymphodorus[90] recommends that the most heavy and dense pieces of mineral cadmia that can be procured, should be burnt upon hot coals and quenched in Chian wine; after which, it must be pounded and then sifted through a linen cloth. It is then pulverized in a mortar and macerated in rain water, the sediment being again pounded until it is reduced to the consistency of ceruse, and presents no grittiness to the teeth. Iollas[91] recommends the same process; except that he selects the purest specimens of native cadmia.

### CHAP. 23.—FIFTEEN REMEDIES DERIVED FROM CADMIA. TEN MEDICINAL EFFECTS OF CALCINED COPPER.

Cadmia[92] acts as a desiccative, heals wounds, arrests discharges, acts detergently upon webs and foul incrustations of the eyes, removes eruptions, and produces, in fact, all the good effects which we shall have occasion to mention when speaking of lead. Copper too, itself, when calcined, is employed for all these purposes; in addition to which it is used for white spots and cicatrizations upon the eyes. Mixed with milk, it is curative also of ulcers upon the eyes; for which purpose, the people in Egypt make a kind of eye-salve by grinding it upon whet stones. Taken with honey, it acts as an emetic. For these purposes, Cyprian copper is calcined in unbaked earthen pots, with an equal quantity of sulphur; the apertures of the vessel being well luted, and it being left in the furnace until the vessel itself has become completely hardened. Some persons add salt, and others substitute alum[93] for sulphur; others, again, add nothing, but merely sprinkle the copper with vinegar. When calcined, it is pounded in a mortar of Thebaic stone,[94] after which it is washed with rain water, and then

[89] See B. xiv. c. 16. [90] See end of B. iii. [91] See end of B. xii.

[92] We have the same account of the medicinal effects of Cadmia, and the other preparations mentioned in this Chapter, given by Dioscorides.—B.

[93] For an account of the "alumen" of the ancients, see B. xxxv. c. 52.

[94] See B. xxxiii. c. 21, and B. xxxvi. c. 13.

pounded with a large quantity of water, and left to settle. This process is repeated until the deposit has gained the appearance of minium;[95] after which it is dried in the sun, and put by for keeping in a box made of copper.

### CHAP 24. (11.)—THE SCORIA OF COPPER.

The scoria, too, of copper is washed in the same manner; but the action of it is less efficacious than that of copper itself. The flower, too, of copper[96] is also used in medicine; a substance which is procured by fusing copper, and then removing it into another furnace, where the repeated action of the bellows makes the metal separate into small scales, like the husks of millet, and known as "flower of copper." These scales are also separated, when the cakes of metal are plunged into water: they become red, too, like the scales of copper known as "lepis,"[97] by means of which the genuine flower of copper is adulterated, it being also sold under that name. This last is made by hammering nails that are forged from the cakes of metal. All these processes are principally carried on in the furnaces of Cyprus; the great difference between these substances being, that this lepis is detached from the cakes by hammering, whereas the flower falls off spontaneously.

### CHAP. 25.—STOMOMA OF COPPER; FORTY-SEVEN REMEDIES.

There is another finer kind of scale which is detached from the surface of the metal, like a very fine down, and known as "stomoma."[98] But of all these substances, and even of their names, the physicians, if I may venture so to say, are quite ignorant, as appears by the names they give them; so

[95] See B. xxxiii: c. 37.

[96] "Æris flos." Ajasson makes some correct remarks upon the difference between the "scoria" and the "flower" of the metal. The former may be considered as consisting of the metal, mixed with a certain proportion of heterogeneous matter, which has been separated during the fusion of the ore, while the latter consists of the pure metal in a state of mechanical division.—B. [97] From the Greek λεπίς, "husk," or "scale."

[98] Ajasson describes this substance as consisting merely of the pure metal in a state of minute mechanical division; it would appear, therefore, to be scarcely, if at all, different from the articles described in the last Chapter. The word Στόμωμα means a "hard substance," or "hard scales," therefore the application of this term to a substance like down, "lanugo," is perhaps not very appropriate.—B.

unacquainted are they with the preparation of medicaments, a thing that was formerly considered the most essential part of their profession.[99] At the present day, whenever they happen to find a book of recipes, if they wish to make any composition from these substances, or, in other words, to make trial of the prescription at the expense of their unhappy patients, they trust entirely to the druggists,[1] who spoil everything by their fraudulent adulterations. For this long time past, they have even purchased their plasters and eye-salves ready made, and the consequence is, that the spoiled or adulterated wares in the druggists' shops are thus got rid of.

Both lepis and flower of copper are calcined in shallow earthen or brazen pans; after which they are washed, as described above,[2] and employed for the same purposes; in addition to which, they are used for excrescences in the nostrils and in the anus, as also for dullness of the hearing, being forcibly blown into the ears through a tube. Incorporated with meal, they are applied to swellings of the uvula, and, with honey, to swellings of the tonsils. The scales prepared from white copper are much less efficacious than those from Cyprian copper. Sometimes they first macerate the nails and cakes of copper in a boy's urine; and in some instances, they pound the scales, when detached, and wash them in rain water. They are then given to dropsical patients, in doses of two drachmæ, with one semisextarius of honied wine: they are also made into a liniment with fine flour.

### CHAP. 26.—VERDIGRIS; EIGHTEEN REMEDIES.

Verdigris[3] is also applied to many purposes, and is prepared

[99] Beckmann comments at some length on this passage; Vol. I. p. 328. *Bohn's Edition.*

[1] "Seplasiæ." The druggists dwelling in the Seplasia. See B. xxxiii. c. 58.

[2] In Chapters 22 and 23, as applied to Cadmia and Cyprian copper, respectively.—B.

[3] "Ærugo." The researches of modern chemists have ascertained the composition of verdigris to be a diacetete of copper; the sesquibasic acetate and the triacetate are also to be considered as varieties of this substance; we have an exact analysis of these salts in the "Elements" of the late Dr. Turner, the Sixth Edition, edited by Professor Liebig and Mr. W. Turner, pp. 931, 2. Most of the processes described in this Chapter are mentioned by Dioscorides.—B. See also Beckmann, Hist. Inv. Vol. I. p. 171, *et seq.*, *Bohn's Edition.*

in numerous ways. Sometimes it is detached already formed, from the mineral from which copper is smelted: and sometimes it is made by piercing holes in white copper, and suspending it over strong vinegar in casks, which are closed with covers; it being much superior if scales of copper are used for the purpose. Some persons plunge vessels themselves, made of white copper, into earthen pots filled with vinegar, and scrape them at the end of ten days. Others, again, cover the vessels with husks of grapes,[4] and scrape them in the same way, at the end of ten days. Others sprinkle vinegar upon copper filings, and stir them frequently with a spatula in the course of the day, until they are completely dissolved. Others prefer triturating these filings with vinegar in a brazen mortar: but the most expeditious method of all is to add to the vinegar shavings of coronet copper.[5] Rhodian verdigris, more particularly, is adulterated with pounded marble; some persons use pumice-stone or gum.

The adulteration, however, which is the most difficult to detect, is made with copperas;[6] the other sophistications being detected by the crackling of the substance when bitten with the teeth. The best mode of testing it is by using an iron fire-shovel; for when thus subjected to the fire, if pure, the verdigris retains its colour, but if mixed with copperas, it becomes red. The fraud may also be detected by using a leaf of papyrus, which has been steeped in an infusion of nut-galls; for it becomes black immediately upon the genuine verdigris being applied. It may also be detected by the eye; the green colour being unpleasant to the sight. But whether it is pure or adulterated, the best method is first to wash and dry it, and then to burn it in a new earthen vessel, turning it over until it is reduced to an ash;[7] after which it is pounded and put by for use. Some persons calcine it in raw earthen vessels, until the earthenware becomes thoroughly baked: others again add to it male frankincense.[8] Verdigris is washed, too, in the same manner as cadmia.

[4] According to Brotero, this is the process generally adopted in France, in preference to the employment of vinegar in a pure state.—B.

[5] The form of copper which was termed "coronarium" has been already described in Chapter 22.—B.

[6] "Atramento sutorio." "Shoemakers' black." See Chapters 27 and 32 of this Book.

[7] Until it assumes an ashy colour, Dioscorides says.—B.

[8] See B. xii. cc. 30, 32.

It affords a most useful ingredient for eye-salves, and from its mordent action is highly beneficial for watery humours of the eyes. It is necessary, however, to wash the part with warm water, applied with a fine sponge, until its mordency is no longer felt.

### CHAP. 27.—HIERACIUM.

"Hieracium"[9] is the name given to an eye-salve, which is essentially composed of the following ingredients; four ounces of sal ammoniac, two of Cyprian verdigris, the same quantity of the kind of copperas which is called "chalcanthum,"[10] one ounce of misy[11] and six of saffron; all these substances being pounded together with Thasian vinegar and made up into pills. It is an excellent remedy for incipient glaucoma and cataract, as also for films upon the eyes, eruptions, albugo, and diseases of the eye-lids. Verdigris, in a crude state, is also used as an ingredient in plasters for wounds. In combination with oil, it is wonderfully efficacious for ulcerations of the mouth and gums, and for sore lips. Used in the form of a cerate, it acts detergently upon ulcers, and promotes their cicatrization. Verdigris also consumes the callosities of fistulas and excrescences about the anus, either used by itself, applied with sal ammoniac, or inserted in the fistula in the form of a salve. The same substance, kneaded with one third part of resin of turpentine, removes leprosy.

### CHAP 28. (12.)—SCOLEX OF COPPER; EIGHTEEN REMEDIES.

There is another kind of verdigris also, which is called "scolex."[12] It is prepared by triturating in a mortar of

[9] According to Celsus, this substance obtained its name from the person who invented or compounded it; he calls it "Collyrium of Hierax."—B.

[10] "Atramenti sutorii, quod chalcanthum vocant." We may presume that this substance was somewhat different from the "atramentum sutorium" mentioned in the last Chapter: the word "chalcanthum" means "flower of copper;" *χαλκοῦ ἄνθος*.—B. Delafosse identifies it with blue vitriol, sulphate, or hydro-trisulphate of copper. See Chapter 32.

[11] See Chapter 31.

[12] From the Greek *σκωλήξ*, "a worm," "Vermicular Verdigris."—"The accounts of this substance in ancient authors seem to some commentators to be obscure; but in my opinion we are to understand by them that the ingredients were pounded together till the paste they formed assumed the appearance of pieces or threads like worms. For the same reason the Italians give the name of *vermicelli* to wire-drawn paste of

Cyprian copper, alum and salt, or an equal quantity of nitre, with the very strongest white vinegar. This preparation is only made during the hottest days of the year, about the rising of the Dog-star. The whole is triturated until it becomes green, and assumes the appearance of small worms, to which it owes its name. This repulsive form is corrected by mixing the urine of a young child, with twice the quantity of vinegar. Scolex is used for the same medicinal purposes as santerna, which we have described as being used for soldering gold,[13] and they have, both of them, the same properties as verdigris. Native scolex is also procured by scraping the copper ore of which we are about to speak.

### CHAP. 29.—CHALCITIS: SEVEN REMEDIES.

Chalcitis[14] is the name of a mineral, from which, as well as cadmia, copper is extracted by heat. It differs from cadmia in this respect, that this last is procured from beds below the surface, while chalcitis is detached from rocks that are exposed to the air. Chalcitis also becomes immediately friable, being naturally so soft as to have the appearance of a compressed mass of down. There is also this other distinction between them, that chalcitis is a composition of three other substances, copper, misy, and sory,[15] of which last we shall speak in their appropriate places.[16] The veins of copper which it contains are oblong. The most approved kind is of the colour of honey; it is streaked with fine sinuous veins, and is friable and not stony. It is generally thought to be most valuable when fresh, as, when old, it becomes converted into sory. It is highly useful for removing fleshy excrescences in ulcers, for arresting hæmorrhage, and, in the form of a powder, for acting as-

flour used in cookery."—Beckmann, Hist. Inv. Vol. I. p. 173, *Bohn's Edition.*

[13] In B. xxxiii. c. 29—B.

[14] The name, no doubt, of a copper ore which has not been identified. Delafosse suggests that it may have been an ore of iron and copper pyrites in combination with a silky copper malachite. See Chapter 2 of this Book, and B. xxxv. c. 52.

[15] Brongniart is of opinion that the "sory" of Pliny is the sulphate of copper, probably with an excess of acid. He informs us that he has received a specimen of a native sulphate of copper from Cuença, in Spain, which possesses all the characteristics of "sory" as here described. He considers it more difficult to ascertain the chemical composition of "misy," but is disposed to consider it as a mixed sulphate of iron and copper.—B.

[16] In the next two Chapters.—B.

tringently upon the gums, the uvula, and the tonsillary glands.[17] It is applied in wool, as a pessary, for affections of the uterus; and with leek juice it is formed into plasters for diseases of the genitals. This substance is macerated for forty days in vinegar, in an earthen vessel luted with dung; after which it acquires a saffron colour. When this composition is mixed with an equal proportion of cadmia, it forms the medicament known as "psoricon."[18] If two parts of chalcitis are combined with one of cadmia, the medicament becomes more active; and it is rendered still more powerful if vinegar is used instead of wine. For all these purposes, calcined chalcitis is the most efficacious.

CHAP. 30.—SORY: THREE REMEDIES.

The sory[19] of Egypt is the most esteemed, being considered much superior to that of Cyprus, Spain, and Africa; although some prefer the sory from Cyprus for affections of the eyes. But from whatever place it comes, the best is that which has the strongest odour, and which, when triturated, becomes greasy, black, and spongy. It is a substance so unpleasant to the stomach, that some persons are made sick merely by its smell. This is the case more particularly with the sory from Egypt. That from other countries, by trituration, acquires the lustre of misy, and is of a more gritty consistency. Held in the mouth, and used as a collutory, it is good for toothache. It is also useful for malignant ulcers of a serpiginous nature. It is calcined upon charcoal, like chalcitis.

CHAP. 3—MISY: THIRTEEN REMEDIES.

Some persons have stated, that misy[20] is formed by the calcination of the mineral, in trenches;[21] its fine yellow powder becoming mixed with the ashes of the burnt fire-wood. The fact is, however, that though obtained from the mineral, it is already formed, and in compact masses, which require

[17] We have a similar account of its medicinal virtues given us by Dioscorides; Celsus also enumerates chalcitis among the corrosives, or cauteries, "quæ exedunt corpus." He also recommends it for affections of the eyes.—B.

[18] "Sore ointment."

[19] See Note 15 above.

[20] See Note 15 above. Hardouin calls this substance "yellow copperas," or "Roman vitriol."

[21] "In scrobibus." The mineral alluded to is Chalcitis, mentioned in Chapter 29.—B.

force to detach them. The best is that which comes from the manufactories of Cyprus, its characteristics being, that when broken, it sparkles like gold, and when triturated, it presents a sandy or earthy appearance, like chalcitis. Misy is used in the process of refining gold. Mixed with oil of roses, it is used as an injection for suppurations of the ears, and, in combination with wool, it is applied to ulcers of the head. It also removes inveterate granulations of the eye-lids, and is particularly useful for affections of the tonsils, quinsy, and suppurations. For these maladies, sixteen drachmæ should be mixed with one semisextarius of vinegar, and boiled with the addition of some honey, until it becomes of a viscous consistency; in which state it is applicable to the different purposes above mentioned. When its action is wanted to be modified, a sprinkling of honey is added. A fomentation of misy and vinegar removes the callosities of fistulous ulcers; it also enters into the composition of eye-salves. It arrests hæmorrhage, prevents the spreading of serpiginous and putrid ulcers, and consumes fleshy excrescences. It is particularly useful for diseases of the male generative organs, and acts as a check upon menstruation.

### CHAP. 32.—CHALCANTHUM, OR SHOEMAKERS' BLACK: SIXTEEN REMEDIES.

The Greeks, by the name[23] which they have given to it, have indicated the relation between shoemakers' black[24] and copper; for they call it "chalcanthum."[25] Indeed there is no substance[26] so singular in its nature. It is prepared in Spain, from the water of wells or pits which contain it in dissolution. This water is boiled with an equal quantity of pure water, and is then poured into large wooden reservoirs.

[23] Χαλκοῦ ἄνθος. "Flower of copper."—B.

[24] "Atramentum sutorium." It was thus called from its being used for colouring leather. Under this name he probably includes green vitriol, or sulphate of the protoxide of iron, and blue vitriol, or sulphate, and hydro-trisulphate of copper, the former of which is, properly, our copperas. See Beckmann, Hist. Inv. Vol. I. p. 181, *et. seq. Bohn's Edition.* See also Note 10 above.

[25] In reality, the "chalcanthum" of Dioscorides was the small scales separated from molten copper by the application of water. See Chapters 24 and 25 above.

[26] Of this kind, probably. See Beckmann, Hist. Inv. Vol. I. p. 182.

Across these reservoirs there are a number of immovable beams, to which cords are fastened, and then sunk into the water beneath by means of stones; upon which, a slimy sediment attaches itself to the cords, in drops of a vitreous[27] appearance, somewhat resembling a bunch of grapes. Upon being removed, it is dried for thirty days. It is of an azure colour, and of a brilliant lustre, and is often taken for glass. When dissolved, it forms the black dye that is used for colouring leather.

Chalcanthum is also prepared in various other ways: the earth which contains it being sometimes excavated into trenches, from the sides of which globules exude, which become concrete when exposed to the action of the winter frosts. This kind is called "stalagmia,"[28] and there is none more pure. When its colour is nearly white, with a slight tinge of violet, it is called "lonchoton."[29] It is also prepared in pans hollowed out in the rocks; the rain water carrying the slime into them, where it settles and becomes hardened. It is also formed in the same way in which we prepare salt;[30] the intense heat of the sun separating the fresh water from it. Hence it is that some distinguish two kinds of chalcanthum, the fossil and the artificial; the latter being paler than the former, and as much inferior to it in quality as it is in colour.

The chalcitis which comes from Cyprus is the most highly esteemed for the purposes of medicine, being taken in doses of one drachma with honey, as an expellent of intestinal worms. Diluted and injected into the nostrils, it acts detergently upon the brain, and, taken with honey or with hydromel, it acts as a purgative upon the stomach. It removes granulations upon the eye-lids, and is good for pains and films upon the eyes; it is curative also of ulcerations of the mouth. It arrests bleeding at the nostrils, and hæmorrhoidal discharges. In combination with seed of hyoscyamus, it brings away splinters of broken bones. Applied to the forehead with a sponge, it acts as a check upon defluxions of the eyes. Made up into plasters, it is very efficacious as a detergent for sores

[27] From this *vitreous* appearance of the crystals of vitriol, it is most probable that vitriol derives its name. See Beckmann, Vol. I. p. 184.

[28] "Drop," or "globule" chalcanthum.

[29] Possibly a corruption of "leucoion," "violet white."

[30] He has described the mode of procuring salt, by evaporating the brine in shallow pits, in B. xxxi. c. 39.—B.

and fleshy excrescences in ulcers. The decoction of it, by the contact solely, is curative of swellings of the uvula. It is laid with linseed upon plasters which are used for relieving pains. The whitish kind is preferred to the violet in one instance only, for the purpose of being blown into the ears, through a tube, to relieve deafness. Applied topically by itself, it heals wounds; but it leaves a discoloration upon the scars. It has been lately discovered, that if it is sprinkled upon the mouths of bears and lions in the arena, its astringent action is so powerful as to deprive the animals of the power of biting.

### CHAP. 33. (13.)—POMPHOLYX.

The substances called pompholyx[31] and spodos[32] are also found in the furnaces of copper-smelting works; the difference between them being, that pompholyx is disengaged by washing, while spodos is not washed. Some persons have called the part which is white and very light "pompholyx," and say that it is the ashes of copper and cadmia; whereas spodos is darker and heavier, being a substance scraped from the walls of the furnace, mixed with extinguished sparks from the metal, and sometimes with the residue of coals. When vinegar is combined with it, pompholyx emits a coppery smell, and if it is touched with the tongue, the taste is most abominable. It is useful as an ingredient in ophthalmic preparations for all diseases of the eyes, as also for all the purposes for which spodos is used; this last only differing from it in its action being less powerful. It is also used for plasters, when required to be gently cooling and desiccative. For all these purposes it is more efficacious when it has been moistened with wine

### CHAP. 34.—SPODOS; FIVE REMEDIES.

The Cyprian spodos[33] is the best. It is formed by fusing

[31] It is difficult to ascertain the exact nature of the substances treated of in this Chapter. Ajasson has some judicious remarks upon them, in which he points out what appear to be inconsistencies in the account given of them, and of their relation to each other.—B. Ajasson says that there is no doubt that a mammose or terreous carbonate of copper is meant under these names. These substances are no longer known, but our tutty, or impure oxide of zinc, bears some resemblance to them.

[32] See B. xix. c. 4, and Chapters 34 and 52 of this Book.

[33] A Greek word, signifying "ashes," or the residuum after combustion.—B.

cadmia with copper ore. This substance, which is the lightest part of the metal disengaged by fusion, escapes from the furnace, and adheres to the roof, being distinguished from the soot by the whiteness of its colour. Such parts of it as are less white are indicative of incomplete combustion, and it is this which some persons call "pompholyx." Such portions of it as are of a more reddish colour are possessed of a more energetic power, and are found to be so corrosive, that if it touches the eyes, while being washed, it will cause blindness. There is also a spodos of a honey colour, an indication that it contains a large proportion of copper. All the different kinds, however, are improved by washing; it being first skimmed with a feather,[34] and afterwards submitted to a more substantial washing, the harder grains being removed with the finger. That, too, which has been washed with wine is more modified in its effects; there being also some difference according to the kind of wine that is used. When it has been washed with weak wine the spodos is considered not so beneficial as an ingredient in medicaments for the eyes; but the same kind of preparation is more efficacious for running sores, and for ulcers of the mouth attended with a discharge of matter, as well as in all those remedies which are used for gangrene.

There is also a kind of spodos, called "lauriotis,"[35] which is made in the furnaces where silver is smelted. The kind, however, that is best for the eyes, it is said, is that produced in the furnaces for smelting gold. Indeed there is no department of art in which the ingenuity of man is more to be admired; for it has discovered among the very commonest objects, a substance that is in every way possessed of similar properties.

### CHAP. 35.—FIFTEEN VARIETIES OF ANTISPODOS.

The substance called "antispodos"[36] is produced from the ashes of the fig-tree or wild fig, or of leaves of myrtle, together with the more tender shoots of the branches. The leaves, too, of the wild olive[37] furnish it, the cultivated olive, the quince-tree, and the lentisk; unripe mulberries also, before

[34] From the corresponding passage in Dioscorides, there is some doubt whether the account of this process here given is correct.—B.

[35] So called from Laurium, a district in Attica, in which there were silver mines. See Pausanias, B. i.—B.

[36] Meaning "Substitute for spodos."

[37] See B. xxiii. cc. 38, 63.

they have changed their colour, dried in the sun; and the foliage of the box, pseudo-cyprus,[38] bramble, terebinth and œnanthe.[39] The same virtues have also been found in the ashes of bull-glue[40] and of linen cloth. All these substances are burnt in a pot of raw earth, which is heated in a furnace, until the earthenware is thoroughly baked.

### CHAP. 36.—SMEGMA.

In the copper forges also smegma[41] is prepared. When the metal is liquefied and thoroughly smelted, charcoal is added to it and gradually kindled; after which, upon it being suddenly acted upon by a powerful pair of bellows, a substance is disengaged like a sort of copper chaff. The floor on which it is received ought to be prepared with a stratum of coal-dust.

### CHAP. 37.—DIPHRYX.

There is another product of these furnaces, which is easily distinguished from smegma, and which the Greeks call "diphryx,"[42] from its being twice calcined. This substance is prepared from three different sources. It is prepared, they say, from a mineral pyrites, which is heated in the furnace until it is converted by calcination into a red earth. It is also made in Cyprus, from a slimy substance extracted from a certain cavern there, which is first dried and then gradually heated, by a fire made of twigs. A third way of making it, is from the residue in the copper-furnaces that falls to the bottom. The difference between the component parts of the ore is this; the copper itself runs into the receivers, the scoriæ make their escape from the furnace, the flower becomes sublimated, and the diphryx remains behind.

Some say that there are certain globules in the ore, while being smelted, which become soldered together; and that the rest of the metal is fused around it, the mass itself not becoming liquefied, unless it is transferred to another furnace, and forming a sort of knot, as it were, in the metal. That which remains after the fusion, they say, is called "diphryx." Its use in medicine is similar to that of the substances mentioned above;[43] it

[38] See B. xxi. c. 26, and B. xvi. c. 20. [39] See B. xxi. c. 95.
[40] See B. xi. c. 94.—B. [41] "Detersive composition."
[42] From Δὶς φρυγέσθαι.—"being twice calcined."—B.
[43] The Scoriæ, Cadmia, and Flos, which are described in Chapters 22, 23 and 24.—B.

is desiccative, removes morbid excrescenses, and acts as a detergent. It is tested by placing it on the tongue, which ought to be instantly parched by it, a coppery flavour being perceptible.

### CHAP. 38.—PARTICULARS RELATIVE TO THE SERVILIAN TRIENS.

We must not neglect to mention one other very remarkable fact relative to copper. The Servilian family, so illustrious in our annals, nourishes with gold and silver a copper triens,[44] which devours them both. The origin and nature of this coin is to me incomprehensible;[45] but I will quote the very words of the story, as given by old Messala[46] himself—"The family of the Servilii is in possession of a sacred triens, to which they offer every year a sacrifice, with the greatest care and magnificence; the triens itself, they say, appears sometimes to increase in size and sometimes to diminish; changes which indicate the coming advancement or decadence of the family."

### CHAP. 39 (14).—IRON ORES.

Next to copper we must give an account of the metal known as iron, at the same time the most useful and the most fatal instrument in the hand of mankind. For by the aid of iron we lay open the ground, we plant trees, we prepare our vineyard-trees,[47] and we force our vines each year to resume their youthful state, by cutting away their decayed branches. It is by the aid of iron that we construct houses, cleave rocks, and perform so many other useful offices of life. But it is with iron also that wars, murders, and robberies are effected, and this, not only hand to hand, but from a distance even, by the aid of missiles and winged weapons, now launched from engines, now hurled by the human arm, and now furnished with feathery wings. This last I regard as the most criminal artifice that has been devised by the human mind; for, as if to bring death upon man with still greater rapidity, we have given wings to iron and taught it to fly.[48] Let us there-

[44] A Roman coin, equal to the third part of the "as."—B.

[45] We most fully coincide with Pliny in this sentiment, but we are constrained to differ from him in giving credit to the alleged fact, as he appears to have done.—B.

[46] See the list of authors at the end of this Book.

[47] "Arbusta:" trees on which vines were trained. See B. xvii. c. 35.

[48] Holland has the following Note upon this passage: "O Pliny, what wouldst thou say, if thou didst see and hear the pistols, muskets, culverines, and cannons in these days." Vol. II. p. 513.—B.

fore acquit Nature of a charge that here belongs to man himself.[49]

Indeed there have been some instances in which it has been proved that iron might be solely used for innocent purposes. In the treaty which Porsena granted to the Roman people, after the expulsion of the kings, we find it expressly stipulated, that iron shall be only employed for the cultivation of the fields; and our oldest authors inform us, that in those days it was considered unsafe to write with an iron pen.[50] There is an edict extant, published in the third consulship of Pompeius Magnus, during the tumults that ensued upon the death of Clodius, prohibiting any weapon from being retained in the City.

### CHAP. 40.—STATUES OF IRON; CHASED WORKS IN IRON.

Still, however, human industry has not failed to employ iron for perpetuating the honours of more civilized life. The artist Aristonidas, wishing to express the fury of Athamas subsiding into repentance, after he had thrown his son Learchus from the rock,[51] blended copper and iron, in order that the blush of shame might be more exactly expressed, by the rust of the iron making its appearance through the shining substance of the copper; a statue which still exists at Rhodes. There is also, in the same city, a Hercules of iron, executed by Alcon,[52] the endurance displayed in his labours by the god having suggested the idea. We see too, at Rome, cups of iron consecrated in the Temple of Mars the Avenger.[53] Nature, in conformity with her usual benevolence, has limited the power of iron, by inflicting upon it the punishment of rust; and has thus displayed her usual foresight in rendering nothing in existence more perishable, than the substance which brings the greatest dangers upon perishable mortality.

### CHAP. 41.—THE DIFFERENT KINDS OF IRON, AND THE MODE OF TEMPERING IT.

Iron ores are to be found almost everywhere; for they exist

[49] The charge that death is always the work of Nature.—B.

[50] Or "stylus." [51] See Ovid, Metam. B. iv. l. 467, *et seq.*; and Fasti, B. vi. l. 489, *et seq.*—B. [52] An artist mentioned also by Ovid and Pausanias.—B. And by Virgil.

[53] "Mars Ultor." In the Forum of Augustus, in the Eighth Region of the City.

even in the Italian island of Ilva,[54] being easily distinguished by the ferruginous colour of the earth. The method of working the ore is the same as that employed in the case of copper. In Cappadocia, however, it is peculiarly questionable whether this metal is a present due to the water or to the earth; because, when the latter has been saturated with the water of a certain river, it yields, and then only, an iron that may be obtained by smelting.

There are numerous varieties of iron ore; the chief causes of which arise from differences in the soil and in the climate. Some earths produce a metal that is soft, and nearly akin to lead; others an iron that is brittle and coppery, the use of which must be particularly avoided in making wheels or nails, the former kind being better for these purposes. There is another kind, again, which is only esteemed when cut into short lengths, and is used for making hobnails;[55] and another which is more particularly liable to rust. All these varieties are known by the name of "strictura,"[56] an appellation which is not used with reference to the other metals, and is derived from the steel that is used for giving an edge.[57] There is a great difference,

[54] The Isle of Elba, which has been celebrated for the extent and the richness of its iron mines both by the ancients and the moderns.—B. Ajasson remarks that it appears to be a solid rock composed of peroxide of iron.

[55] "Clavis caligariis." See B. viii. c. 44, B. ix. c. 33, and B. xxii. c. 46.

[56] There have been numerous opinions on the meaning of this word, and its signification is very doubtful. Beckmann has the following remarks in reference to this passage:—"In my opinion, this was the name given to pieces of steel completely manufactured and brought to that state which rendered them fit for commerce. At present steel comes from Biscay in cakes, from other places in bars, and both these were formerly called 'stricturæ,' because they were employed chiefly for giving sharpness to instruments, or tools, that is, for steeling them. In speaking of other metals, Pliny says that the finished productions at the works were not called 'stricturæ' (the case, for example, with copper), though sharpness could be given to instruments with other metals also. The words of Pliny just quoted are read different ways, and still remain obscure. I conjecture that he meant to say, that some steel-works produced things which were entirely of steel, and that others were employed only in steeling—'ad densandas incudes malleorumve rostra.' I shall here remark that these 'stricturæ ferri' remind us of the 'striges auri,' (see B. xxxiii. c. 19), such being the name given to native pieces of gold, which, without being smelted, were used in commerce."—Hist. Inv. Vol. II. p. 327. *Bohn's Edition.*

[57] "A stringendâ acie." The iron was probably formed into thin,

too, in the smelting; some kinds producing knurrs of metal, which are especially adapted for hardening into steel, or else prepared in another manner, for making thick anvils or heads of hammers. But the main difference results from the quality of the water into which the red-hot metal is plunged from time to time. The water, which is in some places better for this purpose than in others, has quite ennobled some localities for the excellence of their iron, Bilbilis,[58] for example, and Turiasso[59] in Spain, and Comum[60] in Italy; and this, although there are no iron mines in these spots.

But of all the different kinds of iron, the palm of excellence is awarded to that which is made by the Seres,[61] who send it to us with their tissues and skins;[62] next to which, in quality, is the Parthian[63] iron. Indeed, none of the other kinds of iron are made of the pure hard metal, a softer alloy being welded with them all. In our part of the world, a vein of ore is occasionally found to yield a metal of this high quality, as in Noricum[64] for instance; but, in other cases, it derives its value from the mode of working it, as at Sulmo,[65] for example, a result owing to the nature of its water, as already stated. It is to be observed also, that in giving an edge to iron, there is a great difference between oil-whetstones and water-whetstones,[66] the use of oil producing a much finer edge. It is a remarkable fact, that when the ore is fused, the metal becomes liquefied like

long bars, in thickness resembling a steel used for sharpening. The French word *acier*, meaning "steel," may possibly come from the Latin "acies"—"edge," as Beckmann has suggested.

[58] Situate at the spot now known as "Bambola," near Calatayud. The river Salo ran near it, the waters of which, as here mentioned, were celebrated for their power of tempering steel. The poet Martial was a native of this place.

[59] Supposed to be the modern Tarragona. [60] See B. iii. c. 21.

[61] See B. vi. cc. 20-24, B. vii. c. 2, and B. xii. cc. 1, 41. This Seric iron has not been identified. Ctesias, as quoted by Photius, mentions Indian iron. See Beckmann, Vol. II. p. 228. *Bohn's Edition.*

[62] Thought by Beckmann, quoting from Bottiger, possibly to bear reference to a transfer trade of furs, through Serica, from the North of Asia. See Vol. II. p. 307. As to the Seric tissues, see B. xxxvii. c. 77.

[63] Or "Persian." The steel of Damascus had in the middle ages a high reputation.

[64] See B. iii. cc. 24, 27. Horace speaks of the "Norican sword" on two occasions.—B.

[65] See B. iii. cc. 9, 17. [66] See B. xviii. c. 67, and B. xxxvi. c. 38.

water, and afterwards acquires a spongy, brittle texture. It is the practice to quench smaller articles made of iron with oil, lest by being hardened in water they should be rendered brittle. Human blood revenges itself upon iron; for if the metal has been once touched by this blood it is much more apt to become rusty.

### CHAP. 42.—THE METAL CALLED LIVE IRON.

We shall speak of the loadstone in its proper place,[67] and of the sympathy which it has with iron. This is the only metal that acquires the properties of that stone, retaining them for a length of time, and attracting other iron, so that we may sometimes see a whole chain formed of these rings. The lower classes, in their ignorance, call this "live iron," and the wounds that are made by it are much more severe. This mineral is also found in Cantabria, not in continuous strata, like the genuine loadstone, but in scattered fragments, which they call "bullationes."[68] I do not know whether this species of ore is proper also for the fusion of glass,[69] as no one has hitherto tried it; but it certainly imparts the same property as the magnet to iron. The architect Timochares[70] began to erect a vaulted roof of loadstone, in the Temple of Arsinoë,[71] at Alexandria, in order that the iron statue of that princess might have the appearance of hanging suspended in the air:[72] his death, however, and that of King Ptolemæus, who had ordered this monument to be erected in honour of his sister, prevented the completion of the project.

### CHAP. 43. (15.)—METHODS OF PREVENTING RUST.

Of all metals, the ores of iron are found in the greatest abundance. In the maritime parts of Cantabria[73] which are

[67] B. xxxvi. c. 25.

[68] Properly "bubbles," or "beads."

[69] See B. xxxvi. c. 66. In the account of the loadstone referred to above, he informs us that this mineral was employed in the formation of glass.—B. Beckmann is of opinion that Manganese is here alluded to. See Vol. II. p. 237.

[70] Another reading is "Dinochares," or "Dinocrates," for an account of whom, see B. v. c. 11, and B. vii. c. 38.

[71] Wife and sister of Ptolemy Philadelphus. See B. vi. c. 33, and B. xxxvi. c. 14.

[72] Some accounts state that the statue was to be of brass, and the head of iron. It is said that the same thing was attempted with respect to the statue of Mahomet, in his tomb at Medina.—B.

[73] We learn from Bowles that the celebrated mine of Sommorostro is still worked for this metal.

washed by the Ocean, there is a steep and lofty mountain, which, however incredible it may appear, is entirely composed of this metal, as already stated in our description of the parts bordering upon the Ocean[74]

Iron which has been acted upon by fire is spoiled, unless it is forged with the hammer. It is not in a fit state for being hammered when it is red-hot, nor, indeed, until it has begun to assume a white heat. By sprinkling vinegar or alum upon it, it acquires the appearance of copper. It is protected from rust by an application of ceruse, gypsum, and tar; a property of iron known by the Greeks as "antipathia."[75] Some pretend, too, that this may be ensured by the performance of certain religious ceremonies, and that there is in existence at the city of Zeugma,[76] upon the Euphrates, an iron chain, by means of which Alexander the Great constructed a bridge across the river; the links of which that have been replaced are attacked with rust, while the original links are totally exempt from it.[77]

### CHAP. 44.—SEVEN REMEDIES DERIVED FROM IRON.

Iron is employed in medicine for other purposes besides that of making incisions. For if a circle is traced with iron, or a pointed weapon is carried three times round them, it will preserve both infant and adult from all noxious influences: if nails, too, that have been extracted from a tomb, are driven into the threshold of a door, they will prevent night-mare.[78] A slight puncture with the point of a weapon, with which a man has been wounded, will relieve sudden pains, attended with stitches in the sides or chest. Some affections are cured by cauterization with red-hot iron, the bite of the mad dog more particularly; for even if the malady has been fully developed, and hydrophobia has made its appearance, the patient is instantly relieved on the wound being cauterized.[79] Water

[74] See B. iv. c. 34.—B.

[75] Both the reading and the meaning of this passage are very doubtful.

[76] See B. v. c. 21.—B.

[77] We may presume that Pliny supposed that the ancient links had been protected by some of the substances mentioned above, although this is not distinctly stated.—B. Or rather by some religious ceremony as above alluded to.

[78] "Nocturnas lymphationes."—B.

[79] The *actual* cautery, as it is termed, is occasionally employed, in certain diseases, by the moderns, but I am not aware that it has been tried in hydrophobia.—B. This precaution is sometimes used by country practitioners, at all events.

in which iron has been plunged at a white heat, is useful, as a potion, in many diseases, dysentery[80] more particularly.

CHAP. 45.—FOURTEEN REMEDIES DERIVED FROM RUST.

Rust itself, too, is classed among the remedial substances; for it was by means of it that Achilles cured Telephus, it is said, whether it was an iron weapon or a brazen one that he used for the purpose. So it is, however, that he is represented in paintings detaching the rust with his sword.[81] The rust of iron is usually obtained for these purposes by scraping old nails with a piece of moistened iron. It has the effect of uniting wounds, and is possessed of certain desiccative and astringent properties. Applied in the form of a liniment, it is curative of alopecy. Mixed with wax and myrtle-oil, it is applied to granulations of the eyelids, and pustules in all parts of the body; with vinegar it is used for the cure of erysipelas; and, applied with lint, it is curative of itch, whitlows on the fingers, and hang-nails. Used as a pessary with wool, it arrests female discharges. Diluted in wine, and kneaded with myrrh, it is applied to recent wounds, and, with vinegar, to condylomatous swellings. Employed in the form of a liniment, it alleviates gout.[82]

CHAP 46.—SEVENTEEN REMEDIES DERIVED FROM THE SCALES OF IRON. HYGREMPLASTRUM.

The scales of iron,[83] which are procured from a fine point or a sharp edge, are also made use of, being very similar in effect to rust, but more active; for which reason they are employed for defluxions of the eyes. They arrest bleeding, also, more

[80] I cannot agree with Delafosse in his remark that "this remedy also is much in use for cœliac and other affections at the present day."—B. It is still recommended by old women in the country, for children more particularly.

[81] There are two versions of this story. In B. xxv. c. 19, Pliny says that Achilles cured Telephus by the application of a plant, which from him received its name. According to the other account, the oracle had declared, that the wound of Telephus, which had been inflicted by Achilles, could only be cured by means of the same weapon which had caused it.—B.

[82] All the statements in this Chapter are to be found in Dioscorides, B. v. c. 93.—B.

[83] The scaly excrescences beaten from iron in the forges, Hardouin says. —B.

particularly from wounds inflicted with iron; and they act as a check upon female discharges. They are applied, too, for diseases of the spleen, and they arrest hæmorrhoidal swellings and serpiginous ulcers. They are useful also for affections of the eyelids, gradually applied in the form of a fine powder. But their chief recommendation is, their great utility in the form of a hygremplastrum[84] or wet plaster, for cleansing wounds and fistulous sores, consuming all kinds of callosities, and making new flesh on bones that are denuded. The following are the ingredients: of pitch, six oboli, of Cimolian chalk,[85] six drachmæ, two drachmæ of pounded copper, the same quantity of scales of iron, six drachmæ of wax, and one sextarius of oil. To these is added some cerate, when it is wanted to cleanse or fill up wounds.

### CHAP. 47. (16.)—THE ORES OF LEAD.

The nature of lead next comes to be considered. There are two kinds of it, the black and the white.[86] The white is the most valuable: it was called by the Greeks "cassiteros,"[87] and there is a fabulous story told of their going in quest of it to the islands of the Atlantic, and of its being brought in barks made of osiers, covered with hides.[88] It is now known that it is a production of Lusitania and Gallæcia.[89] It is a sand found on the surface of the earth, and of a black colour, and is only to be detected by its weight. It is mingled with small pebbles, particularly in the dried beds of rivers. The miners wash this sand, and calcine the deposit in the furnace. It is also found in the gold mines that are known as "alutiæ,"[89*]

[84] From the Greek ὕγρον πλαστρὸν.—B. [85] See B. xxxv. c. 57.—B.

[86] It is most probable that the "black lead" of Pliny was our lead, and the "white lead" our tin. Beckmann has considered these Chapters at great length, Vol. II. p. 209, *et seq. Bohn's Edition.*

[87] Supposed to have been derived from the Oriental word *Kastira.*

[88] What is here adduced as a fabulous narrative is not very remote from the truth; the Scilly Isles and Cornwall being the principal sources of the tin now employed in Europe. Small boats, corresponding to the description here given, were very lately still in use among the inhabitants of some parts of the south-west coast of England [and on the Severn]. Pliny has already spoken of these boats in B. vii. c. 57.—B. See also B. iv. c. 30, as to the *coracles* of the ancient Britons.

[89] The ores of tin are known to exist in Gallicia; but the mines in that country are very scanty compared to those of Cornwall.—B.

[89*] "Talutium" is mentioned in B. xxxiii. c. 21.

the stream of water which is passed through them detaching certain black pebbles, mottled with small white spots and of the same weight[90] as gold. Hence it is that they remain with the gold in the baskets in which it is collected; and being separated in the furnace, are then melted, and become converted into white lead.[91]

Black lead is not procured in Gallæcia, although it is so greatly abundant in the neighbouring province of Cantabria; nor is silver procured from white lead, although it is from black.[92] Pieces of black lead cannot be soldered without the intervention of white lead, nor can this be done without employing oil;[93] nor can white lead, on the other hand, be united without the aid of black lead. White lead was held in estimation in the days even of the Trojan War, a fact that is attested by Homer, who calls it "cassiteros."[94] There are two different sources of black lead: it being procured either from its own native ore, where it is produced without the intermixture of any other substance, or else from an ore which contains it in common with silver, the two metals being fused together. The metal which first becomes liquid in the furnace, is called "stannum;"[95] the next that melts is silver; and the metal that remains behind is galena,[95*] the third constituent part of the mineral. On this last being again submitted to fusion black lead is produced, with a deduction of two-ninths.

[90] Tin ore is among the heaviest of minerals, though the specific gravity of the metal is small. M. Hæfer is of opinion that these pebbles contained platinum.

[91] Or tin. The greater fusibility of the tin producing this separation. —B.

[92] We may conclude that the "plumbum nigrum," or "black lead" of Pliny is the Galena or sulphuret of lead of the moderns; it is frequently what is termed argentiferous, *i. e.* united with an ore of silver, and this in such quantity as to cause it to be worked for the purpose of procuring the silver.—B. See Beckmann, Vol. II. p. 210.

[93] "Instead of oil, workmen use at present 'colophonium,' or some other resin."—Beckmann, Vol. II. p. 223. See also B. xxxiii. c. 20.

[94] Iliad, xi. 25, and xxiii. 561.—B.

[95] Ajasson considers this to be Bismuth; but it is more probable that Beckmann is right in his conclusion, supported by Agricola, Entzel, Fallopius, Savot, Bernia, and Jung, that it was a compound metal, the *Werk* of the German smelting-houses: a metal not much unlike our pewter, probably. See Beckmann, Hist. Inv. Vol. II. pp. 209, 212, 224. *Bohn's Edition.*

[95*] See B. xxxiii. c. 31, and c. 53 of this Book.

CHAP. 48. (17.)—STANNUM. ARGENTARIUM.

When copper vessels are coated with stannum,[96] they produce a less disagreeable flavour, and the formation of verdigris is prevented; it is also remarkable, that the weight of the vessel is not increased. As already mentioned,[97] the finest mirrors were formerly prepared from it at Brundisium, until everybody, our maid-servants even, began to use silver ones. At the present day a counterfeit stannum is made, by adding one-third of white copper to two-thirds of white lead.[98] It is also counterfeited in another way, by mixing together equal parts of white lead and black lead; this last being what is called "argentarium."[99] There is also a composition called "tertiarium," a mixture of two parts of black lead and one of white: its price is twenty denarii per pound, and it is used for soldering pipes. Persons still more dishonest mix together[1] equal parts of tertiarium and white lead, and, calling the compound "argentarium," coat articles with it melted. This last sells at sixty denarii per ten pounds, the price of the pure unmixed white lead being eighty denarii, and of the black seven.[2]

White lead is naturally more dry; while the black, on the contrary, is always moist; consequently the white, without being mixed with another metal, is of no use[3] for anything. Silver too, cannot be soldered with it, because the silver becomes fused before the white lead. It is confidently stated, also, that if too small a proportion of black lead is mixed with

[96] A compound metal, probably, somewhat like pewter. See Note 95 above. He evidently alludes to the process of "tinning."

[97] In B. xxxiii. c. 45: where he says that the best mirrors were formerly made of a mixture of stannum and copper.—B. See Beckmann, Hist. Inv. Vol. II. pp. 60-62, 72.

[98] Or tin.

[99] "Silver mixture."

[1] Such a mixture as this would in reality become *more valuable* than "argentarium," as the proportion would be *two-thirds* of tin and one of lead. How then could the workmen merit the title of dishonest? Beckmann suggests that the tinning ought to have been done with *pure tin*, but that unprincipled artists employed tin mixed with lead. It is most probable, however, that Pliny himself has made a mistake, and that we should read "equal parts of black lead" (our lead); in which case the mixture passed off as "argentarium," instead of containing *equal* parts of tin and lead, would contain *five-sixths* of lead. See Beckmann, Hist. Inv. Vol. II. p. 221. *Bohn's Edition.*

[2] All these readings are doubtful in the extreme.

[3] As being too brittle, probably; the reason suggested by Beckmann, Vol. II. p. 221.

the white, this last will corrode the silver. It was in the Gallic provinces that the method was discovered of coating articles of copper with white lead, so as to be scarcely distinguishable from silver: articles thus plated are known as "incoctilia."[4] At a later period, the people of the town of Alesia[5] began to use a similar process for plating articles with silver, more particularly ornaments for horses, beasts of burden, and yokes of oxen: the merit, however, of this invention belongs to the Bituriges.[6] After this, they began to ornament their esseda, colisata, and petorita[7] in a similar manner; and luxury has at last arrived at such a pitch, that not only are their decorations made of silver, but of gold even, and what was formerly a marvel to behold on a cup, is now subjected to the wear and tear of a carriage, and this in obedience to what they call fashion!

White lead is tested, by pouring it, melted,[8] upon paper, which ought to have the appearance of being torn rather by the weight than by the heat of the metal. India has neither copper nor lead,[9] but she procures them in exchange for her precious stones and pearls.

## CHAP. 49.—BLACK LEAD.

Black lead[10] is used in the form of pipes and sheets: it is extracted with great labour in Spain, and throughout all the Gallic provinces; but in Britannia[10*] it is found in the upper stratum of the earth, in such abundance, that a law has been spontaneously made, prohibiting any one from working more than a certain quantity of it. The various kinds of black lead are known by the following names—the Ovetanian,[11] the Caprariensian,[12]

[4] Literally, "inboiled," being coated by immersion in the molten tin.

[5] Supposed by Hardouin to have been the town of Alise, in Auxois.

[6] See B. iv. c. 33.

[7] The names of various kinds of carriages, the form of which is now unknown.

[8] Both tin and lead can be fused in paper, when it is closely wrapped around them.

[9] In reality India did and does possess them both; but it is possible that in those days it was not considered worth while to search for them.

[10] The "lead" of the moderns.

[10*] Mr. T. Wright, the eminent antiquarian, is of opinion that the extensive Roman lead mines at Shelve, in Shropshire, are here alluded to. See the *Illustrated London News*, Oct. 4, 1856.

[11] Probably from Ovetum, the modern Oviedo.—B.

[12] So called from the island of Capraria. See B. iii. cc. 11, 12, and B. vi. c. 37.

and the Oleastrensian.[12*] There is no difference whatever in them, when the scoria has been carefully removed by calcination. It is a marvellous fact, that these mines, and these only, when they have been abandoned for some time, become replenished, and are more prolific than before. This would appear to be effected by the air, infusing itself at liberty through the open orifices, just as some women become more prolific after abortion. This was lately found to be the case with the Santarensian mine in Bætica;[13] which, after being farmed at an annual rental of two hundred thousand denarii, and then abandoned, is now rented at two hundred and fifty-five thousand per annum. In the same manner, the Antonian mine in the same province has had the rent raised to four hundred thousand sesterces per annum.

It is a remarkable fact, that if we pour water into a vessel of lead, it will not melt; but that if we throw into the water a pebble or a copper quadrans,[14] the vessel will be penetrated by the fire.

### CHAP. 50. (18.)—FIFTEEN REMEDIES DERIVED FROM LEAD.

Lead is used in medicine, without any addition, for the removal of scars; if it is applied, too, in plates, to the region of the loins and kidneys, in consequence of its cold nature it will restrain the venereal passions, and put an end to libidinous dreams at night, attended with spontaneous emissions, and assuming all the form of a disease. The orator Calvus, it is said, effected a cure for himself by means of these plates, and so preserved his bodily energies for labour and study. The Emperor Nero—for so the gods willed it—could never sing to the full pitch of his voice, unless he had a plate of lead upon his chest; thus showing us one method of preserving the voice.[15] For medicinal purposes the lead is melted in earthen vessels; a layer of finely powdered sulphur being placed beneath, very thin plates of lead are laid upon it, and are then covered with a mixture of sulphur and iron. While it is being melted, all the apertures in the vessel should be closed, otherwise a

[12*] See B. iii. c. 12.

[13] Not in Bætica, as Brotero remarks, but in Lusitania, or Portugal; the modern Santarem.—B.

[14] See Introduction to Vol. III.

[15] This circumstance is mentioned by Suetonius, c. 20.—B.

noxious vapour is discharged from the furnace, of a deadly nature, to dogs in particular. Indeed, the vapours from all metals destroy flies and gnats; and hence it is that in mines there are none of those annoyances.[16] Some persons, during the process, mix lead-filings with the sulphur, while others substitute ceruse for sulphur. By washing, a preparation is made from lead, that is much employed in medicine: for this purpose, a leaden mortar, containing rain water, is beaten with a pestle of lead, until the water has assumed a thick consistency; which done, the water that floats on the surface is removed with a sponge, and the thicker part of the sediment is left to dry, and is then divided into tablets. Some persons triturate lead-filings in this way, and some mix with it lead ore, or else vinegar, wine, grease, or rose-leaves. Others, again, prefer triturating the lead in a stone mortar, one of Thebaic stone more particularly, with a pestle of lead; by which process a whiter preparation is obtained.

As to calcined lead, it is washed, like stibi[17] and cadmia. Its action is astringent and repressive, and it is promotive of cicatrization. The same substance is also employed in preparations for the eyes, cases of procidence[18] of those organs more particularly; also for filling up the cavities left by ulcers, and for removing excrescences and fissures of the anus, as well as hæmorrhoidal and condylomatous tumours. For all these purposes the lotion of lead is particularly useful; but for serpiginous or sordid ulcers it is the ashes of calcined lead that are used, these producing the same advantageous effects as ashes of burnt papyrus.[19]

The lead is calcined in thin plates, laid with sulphur in shallow vessels, the mixture being stirred with iron rods or stalks of fennel-giant, until the melted metal becomes calcined; when cold, it is pulverized. Some persons calcine lead-filings in a vessel of raw earth, which they leave in the furnace, until the earthenware is completely baked. Others, again, mix with it an equal quantity of ceruse or of barley, and triturate it in the way mentioned for raw lead; indeed, the

[16] Hardouin observes, that these insects are never met with in mines; but probably this may depend more upon other causes, than upon the vapours which are supposed to proceed from the metals.—B.

[17] See B. xxxiii. cc. 33, 34. [18] See B. xx. c. 81, and B. xxiv. c. 73.

[19] "Charta." See B. xxiv. c. 51.

lead which has been prepared this way is preferred to the spodium of Cyprus.

### CHAP. 51.—FIFTEEN REMEDIES DERIVED FROM THE SCORIA OF LEAD.

The scoria[20] of lead is also made use of; the best kind being that which approaches nearest to a yellow colour, without any vestiges of lead, or which has the appearance of sulphur without any terreous particles. It is broken into small pieces and washed in a mortar, until the mortar assumes a yellow colour; after which, it is poured off into a clean vessel, the process being repeated until it deposits a sediment, which is a substance of the greatest utility. It possesses the same properties as lead, but of a more active nature. How truly wonderful is the knowledge which we gain by experiment, when even the very dregs and foul residues of substances have in so many ways been tested by mankind!

### CHAP. 52.—SPODIUM OF LEAD.

A spodium[21] of lead is also prepared in the same manner as that extracted from Cyprian copper.[22] It is washed with rain water, in linen of a loose texture, and the earthy parts are separated by pouring it off; after which it is sifted, and then pounded. Some prefer removing the fine powder with a feather, and then triturating it with aromatic wine.

### CHAP. 53.—MOLYBDÆNA: FIFTEEN REMEDIES.

Mólybdæna,[23] which in another place I have called "galena,"[24] is a mineral compounded of silver and lead. It is considered better in quality the nearer it approaches to a golden colour and the less lead it contains; it is also friable, and of moderate weight. When it is melted with oil, it acquires the colour of liver. It is found adhering also to the

[20] This, according to Ajasson, is the protoxide, or probably, in some cases, the arseniate of lead.—B.

[21] From σποδός, "ashes."—B. [22] See Chapter 34 of this Book.—B.

[23] This was probably lead ore in its primary state, when only separated from the stannum, and before it was subjected to fusion for the purpose of obtaining pure lead.—See Beckmann's Hist. Inv. Vol. II. p. 211. *Bohn's Edition.* Ajasson identifies it with litharge, or fused oxide of lead, known as gold and silver litharge, from its colour.

[24] See B. xxxiii. c. 31, and Chapter 47 of this Book.—B.

furnaces in which gold and silver have been smelted; and in this case it is called "metallic." The most esteemed kind is that prepared at Zephyrium.[25] Those kinds, too, are considered the best that are the least earthy and the least stony. It is used in preparing liparæ,[26] as also for soothing or cooling ulcers, and as an ingredient in plasters, which are applied without ligatures, but are used only as a liniment for producing cicatrization on the bodies of delicate persons and the more tender parts. The composition is made of three pounds of molybdæna, one pound of wax, and three heminæ of oil; to which are added lees of olives, in the case of aged persons. Combined with scum of silver[27] and scoria of lead, it is employed warm in fomentations for dysentery and tenesmus.

### CHAP. 54.—PSIMITHIUM, OR CERUSE; SIX REMEDIES.

Psimithium,[28] which is also known as ceruse, is another production of the lead-works. The most esteemed comes from Rhodes. It is made from very fine shavings of lead, placed over a vessel filled with the strongest vinegar; by which means the shavings become dissolved. That which falls into the vinegar is first dried, and then pounded and sifted, after which it is again mixed with vinegar, and is then divided into tablets and dried in the sun, during summer. It is also made in another way; the lead is thrown into jars filled with vinegar, which are kept closed for ten days; the sort of mould that forms upon the surface is then scraped off, and the lead is again put into the vinegar, until the whole of the metal is consumed. The part that has been scraped off is triturated and sifted, and then melted in shallow vessels, being stirred with ladles, until the substance becomes red, and assumes the appearance of sandarach. It is then washed with fresh water, until all the cloudy impurities have disappeared, after which it is dried as before, and divided into tablets.

Its properties are the same as those of the substances above

[25] In Cilicia: see B. v. c. 22. He is speaking, no doubt, of the "metallic," or artificial kind.

[26] A kind of ointment. See B. xxiii. c. 81, and B. xxxiii. c. 35.

[27] Our Litharge. See B. xxxiii. c. 35.

[28] According to Ajasson, this substance is properly a sub-carbonate of lead, commonly called white lead.—B.

mentioned.[29] It is, however, the mildest of all the preparations of lead; in addition to which, it is also used by females to whiten the complexion.[30] It is, however, like scum of silver, a deadly poison. Melted a second time, ceruse becomes red.

### CHAP. 55.—SANDARACH; ELEVEN REMEDIES.

We have already mentioned nearly all the properties of sandarach.[31] It is found both in gold-mines and in silver-mines. The redder it is, the more pure and friable, and the more powerful its odour, the better it is in quality. It is detergent, astringent, heating, and corrosive, but is most remarkable for its septic properties. Applied topically with vinegar, it is curative of alopecy. It is also employed as an ingredient in ophthalmic preparations. Used with honey, it cleanses the fauces and makes the voice more clear and harmonious. Taken with the food, in combination with turpentine, it is a pleasant cure for cough and asthma. In the form of a fumigation also, with cedar, it has a remedial effect upon those complaints.[32]

### CHAP. 56.—ARRHENICUM.

Arrhenicum,[33] too, is procured from the same sources. The best in quality is of the colour of the finest gold; that which is of a paler hue, or resembling sandarach, being less esteemed. There is a third kind also, the colour of which is a mixture of that of gold and of sandarach. The last two kinds are both of them scaly, but the other is dry and pure, and divides into

[29] Scoria of lead and molybdæna.—B.

[30] Preparations of lead are still used in cosmetics for whitening the complexion.

[31] The Realgar of the moderns, red orpiment, or red sulphuret of arsenic. Pliny has in numerous places spoken of it as a remedy for certain morbid states, both of animals and vegetables, B. xvii. c. 47, B. xxiii. c. 13, B. xxv. c. 22, and B. xxviii. c. 62, but he has not previously given any account of its origin and composition.—B.

[32] Dioscorides, B. v. c. 122, informs us, with respect to this effect of sandarach, that it was burned in combination with resin, and that the smoke was inhaled through a tube.—B.

[33] The substance here mentioned, though its name is the foundation of our word "arsenic," is not the arsenic of modern commerce, but probably a sulphuret of arsenic containing a less proportion of sulphur than the Sandarach of the last Chapter.—B.

delicate long veins.[34] This substance has the same virtues as the one last mentioned, but is more active in its effects. Hence it is that it enters into the composition of cauteries and depilatory preparations. It is also used for the removal of hangnails, polypi of the nostrils, condylomatous tumours, and other kinds of excrescences. For the purpose of increasing its energies, it is heated in a new earthen vessel, until it changes its colour.[35]

SUMMARY.—Remedies, one hundred and fifty-eight. Facts, narratives, and observations, nine hundred and fifteen.

ROMAN AUTHORS QUOTED.—L. Piso,[36] Antias,[37] Verrius,[38] M. Varro,[39] Cornelius Nepos,[40] Messala,[41] Rufus,[42] the Poet Marsus,[43] Bocchus,[44] Julius Bassus[45] who wrote in Greek on Medicine, Sextus Niger[46] who did the same, Fabius Vestalis.[47]

FOREIGN AUTHORS QUOTED.—Democritus,[48] Metrodorus[49] of Scepsis, Menæchmus[50] who wrote on the Toreutic art, Xenocrates[51] who did the same, Antigonus[52] who did the same, Duris[53] who did the same, Heliodorus[54] who wrote on the Votive Offerings of the Athenians, Pasiteles[55] who wrote on Wonderful Works, Timæus[56] who wrote on the Medicines de-

[34] The other two mentioned species naturally divide into laminæ, while this kind is disposed to separate into fine fibres.—B.

[35] By this process a considerable portion of the sulphur is expelled, so as to cause the orpiment to approximate to the state of arsenic.—B.

[36] See end of B. ii. [37] See end of B. ii. [38] See end of B. iii.

[39] See end of B. ii. [40] See end of B. ii.

[41] A different person from the Messala mentioned at the end of B. ix. He is mentioned in B. xxxiii. c. 14, B. xxxv. c. 2, and in Chapter 38 of this Book; but nothing further seems to be known of him.

[42] See end of B. vii. and Note 94 to B. vii. c. 53.

[43] Domitius Marsus, a poet of the Augustan age, of whom few particulars are known, except that he wrote an epitaph on the poet Tibullus, who died B.C. 18. He is mentioned by Ovid and Martial, from the latter of whom we learn that his epigrams were distinguished for their wit, licentiousness, and satire. [44] See end of B. xvi. [45] See end of B. xx.

[46] See end of B. xii. [47] See end of B. vii. [48] See end of B. ii.

[49] See end of B. iii. [50] See end of B. iv.

[51] See c. 19 of this Book, Note 11, page 184. [52] See end of B. xxxiii.

[53] See end of B. vii. [54] See end of B. xxxiii. [55] See end of B. xxxiii.

[56] See end of B. xxxiii.

rived from Metals, Nymphodorus,[57] Iollas,[58] Apollodorus,[59] Andreas,[60] Heraclides,[61] Diagoras,[62] Botrys,[63] Archidemus,[64] Dionysius,[65] Aristogenes,[66] Democles,[67] Mnesides,[68] Xenocrates[69] the son of Zeno, Theomnestus.[70]

[57] See end of B. iii.
[58] See end of B. xii.
[59] See end of Books iv., viii., xi., and xx.
[60] See end of B. xx.
[61] See end of Books iv., and xii.
[62] See end of B. xii.
[63] See end of B. xiii.
[64] See end of B. xii.
[65] See end of B. xii.
[66] See end of B. xxix.
[67] See end of B. xii.
[68] See end of B. xii.
[69] See end of B. xxxiii.
[70] See end of B. xxxiii.

# BOOK XXXV

## AN ACCOUNT OF PAINTINGS AND COLOURS.

### CHAP. 1. (1.)—THE HONOUR ATTACHED TO PAINTING.

I HAVE now given at considerable length an account of the nature of metals, which constitute our wealth, and of the substances that are derived from them; so connecting my various subjects, as, at the same time, to describe an immense number of medicinal compositions which they furnish, the mysteries[1] thrown upon them by the druggists, and the tedious minutiæ of the arts of chasing,[2] and statuary,[3] and of dyeing.[4] It remains for me to describe the various kinds of earths and stones; a still more extensive series of subjects, each of which has been treated of, by the Greeks more particularly, in a great number of volumes. For my own part, I propose to employ a due degree of brevity, at the same time omitting nothing that is necessary or that is a product of Nature.

I shall begin then with what still remains to be said with reference to painting, an art which was formerly illustrious, when it was held in esteem both by kings and peoples, and ennobling those whom it deigned to transmit to posterity. But at the present day, it is completely banished in favour of marble, and even gold. For not only are whole walls now covered with marble, but the marble itself is carved out or else marqueted so as to represent objects and animals of various kinds. No longer now are we satisfied with formal compartitions of marble, or with slabs extended like so many mountains in our chambers, but we must begin to paint the very stone itself! This art was invented in the reign of Claudius, but it was in the time of Nero that we discovered the method of inserting in marble spots that do not belong to it,

[1] "Officinarum tenebræ;" probably in reference to the ignorance displayed by the compounders of medicines, as pointed out in B. xxxiii. c. 38, and in B. xxxiv. c. 25.—B.

[2] See B. xxxiii. c. 55.

[3] See B. xxxiv. c. 9.

[4] See B. xxxiii. c. 36.

and so varying its uniformity; and this, for the purpose of representing the marble of Numidia[5] variegated with ovals, and that of Synnada[6] veined with purple; just, in fact, as luxury might have willed that Nature should produce them. Such are our resources when the quarries fail us, and luxury ceases not to busy itself, in order that as much as possible may be lost whenever a conflagration happens.

### CHAP. 2. (2.)—THE HONOUR ATTACHED TO PORTRAITS.

Correct portraits of individuals were formerly transmitted to future ages by painting; but this has now completely fallen into desuetude. Brazen shields are now set up, and silver faces, with only some obscure traces of the countenance;[7] the very heads, too, of statues are changed,[8] a thing that has given rise before now to many a current sarcastic line; so true it is that people prefer showing off the valuable material, to having a faithful likeness. And yet, at the same time, we tapestry the walls of our galleries with old pictures, and we prize the portraits of strangers; while as to those made in honour of ourselves, we esteem them only for the value of the material, for some heir to break up and melt, and so forestall the noose and slip-knot of the thief.[9] Thus it is that we possess the portraits of no living individuals, and leave behind us the pictures of our wealth, not of our persons.

And yet the very same persons adorn the palæstra and the anointing-room[10] with portraits of athletes, and both hang up in their chamber and carry about them a likeness of Epicurus.[11] On the twentieth day of each moon they celebrate his birthday[11*] by a sacrifice, and keep his festival, known as the "Icas,"[12] every month: and these too, people who

[5] See B. xxxvi. c. 8. [6] See B. v. c. 29.

[7] "Surdo figurarum discrimine."

[8] We are informed by Suetonius, that this practice existed in the time of Tiberius.—B. See also Note 18, p. 196.

[9] Which he is ready to employ in carrying away his plunder.

[10] "Ceromata;" this is properly a Greek term, signifying an ointment used by athletes, composed of oil and wax.—B.

[11] This practice is referred to by Cicero, De Finib. B. v.—B.

[11*] In reality, his birth-day was not on the twentieth day of any month; but, for some reason which is not known, he fixed upon this day.—B. He was born on the seventh day of the month Gamelion.

[12] From the Greek εἰκάς, the "twentieth" day of the month.

wish to live without being known![13] So it is, most assuredly, our indolence has lost sight of the arts, and since our minds are destitute of any characteristic features, those of our bodies are neglected also.

But on the contrary, in the days of our ancestors, it was these that were to be seen in their halls, and not statues made by foreign artists, or works in bronze or marble: portraits modelled in wax[14] were arranged, each in its separate niche, to be always in readiness to accompany the funeral processions of the family;[15] occasions on which every member of the family that had ever existed was always present. The pedigree, too, of the individual was traced in lines upon each of these coloured portraits. Their muniment-rooms,[16] too, were filled with archives and memoirs, stating what each had done when holding the magistracy. On the outside, again, of their houses, and around the thresholds of their doors, were placed other statues of those mighty spirits, in the spoils of the enemy there affixed, memorials which a purchaser even was not allowed to displace; so that the very house continued to triumph even after it had changed its master. A powerful stimulus to emulation this, when the walls each day reproached an unwarlike owner for having thus intruded upon the triumphs of another! There is still extant an address by the orator Messala, full of indignation, in which he forbids that there should be inserted among the images of his family any of those of the stranger race of the Lævini.[17] It was the same feeling, too, that extorted from old Messala those compilations of his "On the Families of Rome;" when, upon passing through the hall of Scipio Pomponianus,[18] he observed that, in consequence of a testamentary adoption, the Salvittos[19]

[13] In obedience to the maxim of Epicurus, Λάθε βιώσας—"Live in obscurity." [14] See B. xxi. c. 49, and Note 4, p. 346.

[15] This appears to have been the usual practice at the funerals of distinguished personages among the Romans: it is referred to by Tacitus, Ann. B. ii. c. 73, in his account of the funeral of Germanicus.—B.

[16] "Tabulina." Rooms situate near the atrium.

[17] A cognomen of the Gens Valeria at Rome, from which the family of the Messalæ had also originally sprung.

[18] So called from his father-in-law Pomponius, a man celebrated for his wealth, and by whom he was adopted. It would appear that Scipio Pomponianus adopted Scipio Salvitto, so called from his remarkable resemblance to an actor of mimes. See B. vii. c. 10.

[19] They were probably, like the Scipios, a branch of the Gens Cornelia.

—for that had been their surname—to the disgrace of the Africani, had surreptitiously contrived to assume the name of the Scipios. But the Messalas must pardon me if I remark, that to lay a claim, though an untruthful one, to the statues of illustrious men, shows some love for their virtues, and is much more honourable than to have such a character as to merit that no one should wish to claim them.

There is a new invention too, which we must not omit to notice. Not only do we consecrate in our libraries, in gold or silver, or at all events, in bronze, those whose immortal spirits hold converse with us in those places, but we even go so far as to reproduce the ideal of features, all remembrance of which has ceased to exist; and our regrets give existence to likenesses that have not been transmitted to us, as in the case of Homer, for example.[20] And indeed, it is my opinion, that nothing can be a greater proof of having achieved success in life, than a lasting desire on the part of one's fellow-men, to know what one's features were. This practice of grouping portraits was first introduced at Rome by Asinius Pollio, who was also the first to establish a public library, and so make the works of genius the property of the public. Whether the kings of Alexandria and of Pergamus, who had so energetically rivalled each other in forming libraries, had previously introduced this practice, I cannot so easily say.

That a strong passion for portraits formerly existed, is attested both by Atticus, the friend of Cicero, who wrote a work on this subject,[21] and by M. Varro, who conceived the very liberal idea of inserting, by some means[22] or other, in his numerous volumes, the portraits of seven hundred individuals; as he could not bear the idea that all traces of their features should be lost, or that the lapse of centuries should get the

Suetonius speaks in very derogatory terms of a member of this family, who accompanied Julius Cæsar in his Spanish campaign against the Pompeian party.

[20] In the Greek Anthology, B. v., we have the imaginary portrait of Homer described at considerable length.—B.

[21] Hardouin supposes that this work was written by Cicero, and that he named it after his friend Atticus; but, as Delafosse remarks, it is clear from the context that it was the work of Atticus.—B.

[22] M. Deville is of opinion that these portraits were made in relief upon plates of metal, perhaps bronze, and coloured with minium, a red tint much esteemed by the Romans.

better of mankind. Thus was he the inventor of a benefit to his fellow-men, that might have been envied by the gods themselves; for not only did he confer upon them immortality, but he transmitted them, too, to all parts of the earth; so that everywhere it might be possible for them to be present, and for each to occupy his niche. This service, too, Varro conferred upon persons who were no members of his own family.

CHAP. 3. (3.)—WHEN SHIELDS WERE FIRST INVENTED WITH PORTRAITS UPON THEM; AND WHEN THEY WERE FIRST ERECTED IN PUBLIC.

So far as I can learn, Appius Claudius, who was consul with P. Servilius, in the year of the City, 259, was the first to dedicate shields[23] in honour of his own family in a sacred or public place.[24] For he placed representations of his ancestors in the Temple of Bellona, and desired that they might be erected in an elevated spot, so as to be seen, and the inscriptions reciting their honours read. A truly graceful device; more particularly when a multitude of children, represented by so many tiny figures, displays those germs, as it were, which are destined to continue the line: shields such as these, no one can look at without a feeling of pleasure and lively interest.

CHAP. 4.—WHEN THESE SHIELDS WERE FIRST PLACED IN PRIVATE HOUSES.

More recently, M. Æmilius, who was consul[25] with Quintus Lutatius, not only erected these shields in the Æmilian Basilica,[26] but in his own house as well; in doing which he followed a truly warlike example. For, in fact, these portraits were represented on bucklers, similar to those used in the Trojan War;[27] and hence it is that these shields received their present name of "clypei," and not, as the perverse

[23] "Clypei." These were shields or escutcheons of metal, with the features of the deceased person represented either in painting or in relief.

[24] Hardouin informs us that there are some Greek inscriptions given by Gruter, p. 441, and p. 476, from which it appears that public festivals were celebrated on occasions of this kind.—B.

[25] A.U.C. 671.—B. See B. vii. c. 54. [26] See B. xxxvi. c. 24.

[27] It is scarcely necessary to refer to the well-known description of the shield of Achilles, in the Iliad, B. xviii. l. 478 *et seq.*, and of that of Æneas, Æn. B. viii. l. 626, *et seq.*—B.

subtleties of the grammarians will have it, from the word "cluo."[28] It was an abundant motive for valour, when upon each shield was represented the features of him who had borne it. The Carthaginians used to make both their bucklers and their portraits of gold, and to carry them with them in the camp: at all events, Marcius, the avenger of the Scipios[29] in Spain, found one of this kind on capturing the camp of Hasdrubal, and it was this same buckler that remained suspended over the gate of the Capitoline Temple until the time when it was first burnt.[30] Indeed, in the days of our ancestors, so assured was the safety of these shields, that it has been a subject of remark, that in the consulship of L. Manlius and Q. Fulvius, in the year of the City, 575, M. Aufidius, who had given security for the safety of the Capitol, informed the senate that the bucklers there which for some lustra[31] had been assessed as copper, were in reality made of silver.

### CHAP 5.—THE COMMENCEMENT OF THE ART OF PAINTING. MONOCHROME PAINTINGS. THE EARLIEST PAINTERS.

We have no certain knowledge as to the commencement of the art of painting, nor does this enquiry fall under our consideration. The Egyptians assert that it was invented among themselves, six thousand years before it passed into Greece; a vain boast, it is very evident.[32] As to the Greeks, some say that it was invented at Sicyon, others at Corinth; but they all agree that it originated in tracing lines round the human shadow.[33] The first stage of the art, they say, was this, the

[28] He implies that the word is derived from the Greek γλύφειν, "to carve" or "emboss," and not from the old Latin "cluo," "to be famous." Ajasson suggests the Greek καλύπτω, "to cover."

[29] Cneius and Publius Scipio, who had been slain by Hasdrubal.—B. As to L. Marcius, see B. ii. c. 3.

[30] See B. xxxiii. c. 5.

[31] "Lustrations." Periods at the end of the census, made by the censors every five years. The censors were the guardians of the temples, and consequently these bucklers would come under their supervision.

[32] This period for the invention of painting by the Egyptians is evidently incorrect; but still there is sufficient reason for concluding that there now exist specimens of Egyptian art, which were in existence previous to the time of the earliest Grecian painters of whom we have any certain account.—B.

[33] All the ancients who have treated of the history of the art agree, that the first attempt at what may be considered the formation of a pic-

second stage being the employment of single colours; a process known as "monochromaton,"[34] after it had become more complicated, and which is still in use at the present day. The invention of line-drawing has been assigned to Philocles, the Egyptian, or to Cleanthes[35] of Corinth. The first who practised this line-drawing were Aridices, the Corinthian, and Telephanes, the Sicyonian, artists who, without making use of any colours, shaded the interior of the outline by drawing lines;[36] hence, it was the custom with them to add to the picture the name of the person represented. Ecphantus, the Corinthian, was the first to employ colours upon these pictures, made, it is said, of broken earthenware, reduced to powder. We shall show on a future[37] occasion, that it was a different artist of the same name, who, according to Cornelius Nepos, came to Italy with Demaratus, the father of the Roman king, Tarquinius Priscus, on his flight from Corinth to escape the violence of the tyrant Cypselus.

### CHAP. 6.—THE ANTIQUITY OF PAINTING IN ITALY.

But already, in fact, had the art of painting been perfectly developed in Italy.[38] At all events, there are extant in the temples at Ardea, at this day, paintings of greater antiquity than Rome itself; in which, in my opinion, nothing is more marvellous, than that they should have remained so long unprotected by a roof, and yet preserving their freshness.[39] At Lanuvium, too, it is the same, where we see an Atalanta and a Helena, without drapery, close together, and painted by the

ture, consisted in tracing the shadow of a human head or some other object on the wall, the interior being filled up with one uniform shade of colour.—B.

[34] From the Greek μονοχρώματον, "single colouring."—B.

[35] He is mentioned also by Athenagoras, Strabo, and Athenæus.

[36] Called "graphis," by the Greeks, and somewhat similar, probably, to our pen and ink drawings.

[37] In Chapter 43 of this Book.—B.

[38] Ajasson remarks, that a great number of paintings have been lately discovered in the Etruscan tombs, in a very perfect state, and probably of very high antiquity.—B.

[39] There would appear to be still considerable uncertainty respecting the nature of the materials employed by the ancients, and the manner of applying them, by which they produced these durable paintings; a branch of the art which has not been attained in equal perfection by the moderns.—B.

same artist. They are both of the greatest beauty, the former being evidently the figure of a virgin, and they still remain uninjured, though the temple is in ruins. The Emperor Caius,[40] inflamed with lustfulness, attempted to have them removed, but the nature of the plaster would not admit of it. There are in existence at Cære,[41] some paintings of a still higher antiquity. Whoever carefully examines them, will be forced to admit that no art has arrived more speedily at perfection, seeing that it evidently was not in existence at the time of the Trojan War.[42]

### CHAP. 7. (4.)—ROMAN PAINTERS.

Among the Romans, too, this art very soon rose into esteem, for it was from it that the Fabii, a most illustrious family, derived their surname of "Pictor;" indeed the first of the family who bore it, himself painted the Temple of Salus,[43] in the year of the City, 450; a work which lasted to our own times, but was destroyed when the temple was burnt, in the reign of Claudius. Next in celebrity were the paintings of the poet Pacuvius, in the Temple of Hercules, situate in the Cattle Market:[44] he was a son of the sister of Ennius, and the fame of the art was enhanced at Rome by the success of the artist on the stage. After this period, the art was no longer practised by men of rank; unless, indeed, we would make reference to Turpilius, in our own times, a native of Venetia, and of equestrian rank, several of whose beautiful works are still in existence at Verona. He painted, too, with his left hand, a thing never known to have been done by any one before.[44*]

Titidius Labeo, a person of prætorian rank, who had been formerly proconsul of the province of Gallia Narbonensis, and who lately died at a very advanced age, used to pride himself upon the little pictures which he executed, but it only caused him to be ridiculed and sneered at. I must not omit, too, to mention a celebrated consultation upon the subject of painting, which was held by some persons of the highest rank.

[40] Caligula. [41] See B. iii. c. 8.

[42] We have already remarked that painting was practised very extensively by the Egyptians, probably long before the period of the Trojan war.—B.

[43] Or "Health." It was situate on the Quirinal Hill, in the Sixth Region of the City.

[44] "Forum Boarium." In the Eighth Region of the City.

[44*] Holbein and Mignard did the same.

Q. Pedius,[45] who had been honoured with the consulship and a triumph, and who had been named by the Dictator Cæsar as co-heir with Augustus, had a grandson, who being dumb from his birth, the orator Messala, to whose family his grandmother belonged, recommended that he should be brought up as a painter, a proposal which was also approved of by the late Emperor Augustus. He died, however, in his youth, after having made great progress in the art. But the high estimation in which painting came to be held at Rome, was principally due, in my opinion, to M. Valerius Maximus Messala, who, in the year of the City, 490, was the first to exhibit a painting to the public; a picture, namely, of the battle in which he had defeated the Carthaginians and Hiero in Sicily, upon one side of the Curia Hostilia.[46] The same thing was done, too, by L. Scipio,[47] who placed in the Capitol a painting of the victory which he had gained in Asia; but his brother Africanus, it is said, was offended at it, and not without reason, for his son had been taken prisoner in the battle.[48] Lucius Hostilius Mancinus,[49] too, who had been the first to enter Carthage at the final attack, gave a very similar offence to Æmilianus,[49*] by exposing in the Forum a painting of that city and the attack upon it, he himself standing near the picture, and describing to the spectators the various details of the siege; a piece of complaisance which secured him the consulship at the ensuing Comitia.

The stage, too, which was erected for the games celebrated by Claudius Pulcher,[50] brought the art of painting into great admiration, it being observed that the ravens were so deceived by the resemblance, as to light upon the decorations which were painted in imitation of tiles.

[45] Q. Pedius was either nephew, or great nephew of Julius Cæsar, and had the command under him in the Gallic War; he is mentioned by Cæsar in his Commentaries, and by other writers of this period.—B.

[46] Originally the palace of Tullus Hostilius, in the Second Region of the City.

[47] Asiaticus, the brother of the elder Africanus.—B.

[48] It was *before* the decisive battle near Mount Sipylus, that the son of Africanus was made prisoner. King Antiochus received him with high respect, loaded him with presents, and sent him to Rome.—B.

[49] He was legatus under the consul L. Calpurnius Piso, in the Third Punic War, and commanded the Roman fleet. He was elected Consul B.C. 145. [49*] The younger Scipio Africanus.

[50] We learn from Valerius Maximus, that C. Pulcher was the first to vary the scenes of the stage with a number of colours.—B.

CHAP. 8.—AT WHAT PERIOD FOREIGN PAINTINGS WERE FIRST INTRODUCED AT ROME.

The high estimation in which the paintings of foreigners were held at Rome commenced with Lucius Mummius, who, from his victories, acquired the surname of "Achaicus." For upon the sale of the spoil on that occasion, King Attalus having purchased, at the price of six thousand denarii, a painting of Father Liber by Aristides,[51] Mummius, feeling surprised at the price, and suspecting that there might be some merit in it of which he himself was unaware,[52] in spite of the complaints of Attalus, broke off the bargain, and had the picture placed in the Temple of Ceres;[53] the first instance, I conceive, of a foreign painting being publicly exhibited at Rome.

After this, I find, it became a common practice to exhibit foreign pictures in the Forum; for it was to this circumstance that we are indebted for a joke of the orator Crassus. While pleading below the Old Shops,[54] he was interrupted by a witness who had been summoned, with the question, "Tell me then, Crassus, what do you take me to be?" "Very much like him," answered he, pointing to the figure of a Gaul in a picture, thrusting out his tongue in a very unbecoming manner.[55] It was in the Forum, too, that was placed the picture of the Old Shepherd leaning on his staff; respecting which, when the envoy of the Teutones was asked what he thought was the value of it, he made answer that he would rather not have the original even, at a gift.

CHAP. 9.—AT WHAT PERIOD PAINTING WAS FIRST HELD IN HIGH ESTEEM AT ROME, AND FROM WHAT CAUSES.

But it was the Dictator Cæsar that first brought the public

[51] See Chapter 36 of this Book.

[52] We have an amusing proof of this ignorance of Mummius given by Paterculus, B. i. c. 13, who says that when he had the choicest of the Corinthian statues and pictures sent to Italy, he gave notice to the contractors that if they lost any of them, they must be prepared to supply new ones. Ajasson offers a conjecture which is certainly plausible, that Mummius might possibly regard this painting as a species of talisman.—B.

[53] In the Eleventh Region of the City.

[54] "Sub Veteribus;" meaning that part of the Forum where the "Old Shops" of the "argentarii" or money-brokers had stood.

[55] We have an anecdote of a similar event, related by Cicero, as having occurred to Julius Cæsar, De Oratore, B. ii. c. 66.—B.

exhibition of pictures into such high estimation, by consecrating an Ajax and a Medea[56] before the Temple of Venus Genetrix.[57] After him there was M. Agrippa, a man who was naturally more attached to rustic simplicity than to refinement. Still, however, we have a magnificent oration of his, and one well worthy of the greatest of our citizens, on the advantage of exhibiting in public all pictures and statues; a practice which would have been far preferable to sending them into banishment at our country-houses. Severe as he was in his tastes, he paid the people of Cyzicus twelve hundred thousand sesterces for two paintings, an Ajax and a Venus. He also ordered small paintings to be set in marble in the very hottest part of his Warm Baths;[58] where they remained until they were removed a short time since, when the building was repaired.

### CHAP. 10.—WHAT PICTURES THE EMPERORS HAVE EXHIBITED IN PUBLIC.

The late Emperor Augustus did more than all the others; for he placed in the most conspicuous part of his Forum, two pictures, representing War and Triumph.[59] He also placed in the Temple of his father,[60] Cæsar, a picture of the Castors,[61] and one of Victory, in addition to those which we shall mention in our account of the works of the different artists.[62] He also inserted two pictures in the wall of the Curia[63] which he consecrated in the Comitium;[64] one of which was a Nemea[65] seated upon a lion, and bearing a palm in her hand. Close to

[56] See B. vii. c. 39.

[57] We have had this Temple referred to in B. ii. c. 23, B. vii. c. 39, B. viii. c. 64, and B. ix. c. 57: it is again mentioned in the fortieth Chapter of this Book, and in B. xxxvii. c. 5.—B.

[58] In the "Vaporarium," namely.—B. The Thermæ of Agrippa were in the Ninth Region of the City.

[59] According to Hardouin, this was done after the battle of Actium, in which Augustus subdued his rival Antony.—B.

[60] By adoption. The Temple of Julius Cæsar was in the Forum, in the Eighth Region of the City.

[61] See B. vii. c. 22, B. x. c. 60, and B. xxxiv, c. 11.

[62] In Chapter 36 of this Book.—B.

[63] See B. vii. cc. 45, 54, 60, and B. xxxiv. c. 11.

[64] See B. vii. c. 54, B. xv. c. 20, B. xxxiii. c. 6, and B. xxxiv. c. 11.

[65] This was the personification of the Nemean forest in Peloponnesus, where Hercules killed the lion, the first of the labours imposed upon him by Eurystheus.—B.

her is an Old Man, standing with a staff, and above his head hangs the picture of a chariot with two horses. Nicias[1] has written upon this picture that he "inburned"[2] it, such being the word he has employed.

In the second picture the thing to be chiefly admired, is the resemblance that the youth bears to the old man his father, allowing, of course, for the difference in age; above them soars an eagle, which grasps a dragon in its talons. Philochares[3] attests that he is the author of this work, an instance, if we only consider it, of the mighty power wielded by the pictorial art; for here, thanks to Philochares, the senate of the Roman people, age after age, has before its eyes Glaucion and his son Aristippus, persons who would otherwise have been altogether unknown. The Emperor Tiberius, too, a prince who was by no means very gracious, has exhibited in the temple dedicated by him, in his turn, to Augustus, several pictures which we shall describe hereafter.[4]

### CHAP. 11. (5.)—THE ART OF PAINTING.

Thus much then with reference to the dignity of this now expiring art. We have already[5] stated with what single colours the earlier artists painted, when speaking of these pigments under the head of metals. The new modes of painting which were afterwards discovered, and are known as "neogrammatea,"[6] the names of the artists, their different inventions, and the periods at which these inventions were adopted, will all be described when we come to enumerate the painters: for the present, however, the proposed plan of this work requires, that I should enlarge upon the nature of the several colours that are employed.

The art of painting at last became developed, in the inven-

[1] See Chapter 40 of this Book.

[2] "Inussisse;" meaning that he executed it in encaustic. The Greek term used was probably ΕΝΕΚΑΥΣΕ.

[3] Hemsterhuys is of opinion that he was the brother of Æschines, the orator, contemptuously alluded to by Demosthenes, Fals. Legat. Sec. 237, as a painter of perfume pots. If so, he was probably an Athenian, and must have flourished about the 109th Olympiad.

[4] In Chapter 40 of this Book.

[5] In B. xxxiii. c. 39. He alludes to cinnabaris, minium, rubrica, and sinopis.

[6] Meaning "new painting," probably. The reading, however, is doubtful.

tion of light and shade, the alternating contrast of the colours serving to heighten the effect of each. At a later period, again, lustre[7] was added, a thing altogether different from light. The gradation between lustre and light on the one hand and shade on the other, was called "tonos;" while the blending of the various tints, and their passing into one another, was known as "harmoge."[8]

### CHAP. 12..(6.)—PIGMENTS OTHER THAN THOSE OF A METALLIC ORIGIN. ARTIFICIAL COLOURS.

Colours are either[9] sombre or florid, these qualities arising either from the nature of the substances or their mode of combination. The florid colours are those which the employer supplies[10] to the painter at his own expense; minium,[11] namely, armenium, cinnabaris,[12] chrysocolla,[13] indicum, and purpurissum. The others are the sombre colours. Taking both kinds together, some are native colours, and others are artificial. Sinopis, rubrica, parætonium, melinum, eretria and orpiment, are native colours. The others are artificial, more particularly those described by us when speaking of metals; in addition to which there are, among the more common colours, ochra, usta or burnt ceruse, sandarach, sandyx, syricum, and atramentum.

### CHAP. 13.—SINOPIS: ELEVEN REMEDIES.

Sinopis[14] was discovered in Pontus; and hence its name, from the city of Sinope there. It is produced also in Egypt,

[7] "Splendor." Supposed by Wornum to be equivalent to our word "tone," applied to a coloured picture, which comprehends both the "tonos" and the "harmoge" of the Greeks. Smith's Dict. Antiq. Art. *Painting.*

[8] "Tone," says Fuseli, (in the English acceptation of the word) "is the element of the ancient 'harmoge,' that imperceptible transition, which, without opacity, confusion, or hardness, united local colour, demitint, shade, and reflexes."—Lect. I.

[9] "Austeri aut floridi."

[10] Because of their comparatively great expense.

[11] See B. xxxiii. cc. 36, 37. Under this name are included Sulphuret of mercury, and Red oxide of lead.

[12] See B. xxxiii. cc. 38, 39.

[13] See B. xxxiii. c. 26. "Indicum" and "purpurissum" will be described in the present Book.

[14] Or "rubrica Sinopica;" "red earth of Sinope," a brown red ochre, or red oxide of iron. Dioscorides identifies it with the Greek μίλτος, which indeed seems to have embraced the cinnabaris, minium, and rubricæ of the Romans.

the Balearic islands, and Africa; but the best is found in Lemnos and Cappadocia, being extracted from quarries there. That part is considered the best which has been found adhering to the rock. In the native mass, it has its own proper colour within, but is spotted on the exterior: the ancients made use of it for tone.[15]

There are three kinds of sinopis, the red, the pale red, and the intermediate. The price of the best is twelve denarii per pound; it is used both for painting with the brush, and for colouring wood. The kind which comes from Africa sells at eight asses per pound; the name given to it is "cicerculum."[16] That[17] which is of the deepest red is the most in use for colouring compartitions. The sinopis known as the dull[18] kind, being of a very tawny complexion, sells also at the price of eight asses per pound; it is used principally for the lower[19] parts of compartitions.

Used medicinally, sinopis is of a soothing nature, and is employed as an ingredient in plasters and emollient poultices. It admits of being easily used, whether in the form of a dry or of a liquid composition, for the cure of ulcers situate in the humid parts of the body, the mouth and the rectum, for instance. Used as an injection, it arrests looseness of the bowels, and, taken in doses of one denarius, it acts as a check upon female discharges. Applied in a burnt state, with wine in particular, it has a desiccative effect upon granulations of the eyelids.

### CHAP. 14.—RUBRICA; LEMNIAN EARTH: FOUR REMEDIES.

Some persons have wished to make out that sinopis is nothing else but a kind of rubrica[20] of second-rate quality, looking upon earth of Lemnos as a rubrica of the highest quality. This last approaches very nearly to minium,[21] and

[15] "Splendorem." See Note 7 above.

[16] So called from its deep grey brown colour, like that of the "cicer" or chick-pea.

[17] The sense of this passage seems to require the insertion of "quæ," although omitted by the Bamberg MS.

[18] "Pressior."

[19] Those parts of the walls, probably, which were nearer to the ground, and more likely to become soiled.

[20] Red ochre, or red oxide of iron. See B. xxxiii. c. 38, and B. xxxiv. c. 37.

[21] See B. xxxiii. cc. 36, 37.

was as highly esteemed among the ancients as the island that produces it: it was never sold except in sealed packages, a circumstance to which it was indebted for its additional name of "sphragis." It is with this material that they give the undercoating to minium, in the adulteration of which it is also extensively employed.

In medicine it is very highly esteemed. Applied to the eyes in the form of a liniment, it allays defluxions and pains in those organs, and arrests the discharges from lachrymal fistulas. To persons vomiting blood, it is administered with vinegar to drink. It is taken also internally for affections of the spleen and kidneys; and by females for the purpose of arresting flooding. It is employed too, to counteract the effects of poisons, and of stings inflicted by sea or land serpents; hence it is that it is so commonly used as an ingredient in antidotes.

### CHAP. 15.—EGYPTIAN EARTH.

Of the other kinds of rubrica, those of Egypt and Africa are of the greatest utility to workers in wood, from the fact of their being absorbed with the greatest rapidity. They are used also for painting, and are found in a native state in iron-mines.[22]

### CHAP. 16.—OCHRA: REMEDIES DERIVED FROM RUBRICA.

It is from rubrica also, that ochra[23] is prepared, the rubrica being burnt[24] in new earthen pots well luted with clay. The more highly it is calcined in the furnace, the better the colour is. All kinds of rubrica are of a desiccative nature, and hence it is that they are so useful for plasters, and as an application even for erysipelas.

### CHAP. 17.—LEUCOPHORON.

Half a pound of Pontic sinopis, ten pounds of bright sil,[25]

[22] Ajasson thinks that this was an hydroxide of iron, of a greenish yellow or brown colour.

[23] Whence our word "ochre." See "Sil," in B. xxxiii. cc. 56, 57.

[24] Theophrastus, on the contrary, says that it is "ochra" that is burnt, in order to obtain "rubrica."

[25] See B. xxxiii. cc. 56, 57.

and two pounds of Greek melinum,[26] well mixed and triturated together for twelve successive days, produce "leucophoron,"[27] a cement used for applying gold-leaf to wood.

### CHAP. 18.—PARÆTONIUM.

Parætonium[28] is so called from the place[29] of that name in Egypt. It is sea-foam,[30] they say, solidified with slime, and hence it is that minute shells are often found in it. It is prepared also in the Isle of Crete, and at Cyrenæ. At Rome, it is adulterated with Cimolian[31] earth, boiled and thickened. The price of that of the highest quality is fifty denarii per six pounds. This is the most unctuous of all the white colours, and the most tenacious as a coating for plaster, the result of its smoothness.

### CHAP. 19.—MELINUM: SIX REMEDIES. CERUSE.

Melinum, too, is a white colour, the best being the produce of the Isle of Melos.[32] It is found also in Samos; but this last kind is never used by painters, in consequence of its being too unctuous. The persons employed in extracting it, lie at full length upon the ground, and search for the veins among the rocks. In medicine it is employed for much the same purposes as eretria;[33] in addition to which, it dries the tongue, acts as a depilatory, and has a soothing effect. The price of it is one sestertius per pound.

The third of the white pigments is ceruse, the nature of which we have already[34] explained when speaking of the ores of lead; there was also a native ceruse, formerly found on the

[26] A white earth from the Isle of Melos. See Chapter 19.

[27] See B. xxxiii. c. 20. "One may readily conceive that this must have been a ferruginous ochre, or kind of bole, which is still used as a ground, *poliment, assiette.*"—Beckmann, Hist. Inv. Vol. II. p. 294. *Bohn's Edition.*

[28] A white, much used for fresco painting. Ajasson is of opinion, that Pliny, in this Chapter, like the other ancient authors, confounds two earths that are, in reality, totally different.—Hydrosilicate of magnesia, or Steatite, and Rhomboidical carbonate of lime.

[29] See B. v. c. 6.

[30] Ajasson thinks that possibly our compact magnesite, meerschaum, or sea-foam, may be the substance here alluded to.

[31] See Chapter 57 of this Book.

[32] See B. iv. c. 33. Tournefort says that this earth is exactly similar to the Cimolian earth, described in Chapter 57.

[33] See B. xxxiii. c. 57, and Chapter 21 of this Book.

[34] In B. xxxiv. c. 54.

lands of Theodotus at Smyrna, which the ancients made use of for painting ships. At the present day, all ceruse is prepared artificially, from lead and vinegar,[35] as already stated.

### CHAP. 20.—USTA.

Usta[36] was accidentally discovered at a fire in the Piræus, some ceruse having been burnt in the jars there. Nicias, the artist above-mentioned,[37] was the first to use it. At the present day, that of Asia, known also as "purpurea," is considered the best. The price of it is six denarii per pound. It is prepared also at Rome by calcining marbled sil,[38] and quenching it with vinegar. Without the use of usta shadows cannot be made.[39]

### CHAP. 21.—ERETRIA.

Eretria takes its name from the territory[40] which produces it. Nicomachus[41] and Parrhasius made use of it. In a medicinal point of view, it is cooling and emollient. In a calcined state, it promotes the cicatrization of wounds, is very useful as a desiccative, and is particularly good for pains in the head, and for the detection of internal suppurations. If the earth, when applied[42] with water, does not dry with rapidity, the presence of purulent matter is apprehended.

### CHAP. 22.—SANDARACH.

According to Juba, sandarach and ochra are both of them productions of the island of Topazus,[43] in the Red Sea; but neither of them are imported to us from that place. The

[35] Ceruse, white lead, or carbonate of lead, is prepared in much the same manner at the present day. Ajasson is of opinion that the native pigment discovered on the lands of Theodotus, was native carbonate of lead, the crystals of which are found accompanied by quartz.

[36] "Burnt" ceruse. This was, in fact, one of the varieties of "minium," red oxide of lead, our red lead. Vitruvius and Dioscorides call it "sandaraca," differing somewhat from that of Pliny. [37] In Chapter 10.

[38] See B. xxxiii. cc. 56, 57.

[39] It was possibly owing to this that the colour known as "umber" received its name, and not from Ombria, in Italy. Ajasson says that shadows cannot be successfully made without the use of transparent colours, and that red and the several browns are remarkably transparent.

[40] See B. iv. c. 21. [41] As to both of these artists, see Chapter 36.

[42] To the chest. [43] See B. vi. c. 34, and B. xxxvii. c. 32.

mode of preparing sandarach we have described[44] already: there is a spurious kind also, prepared by calcining ceruse in the furnace. This substance, to be good, ought to be of a flame colour; the price of it is five asses per pound.

### CHAP. 23.—SANDYX.

Calcined with an equal proportion of rubrica, sandarach forms sandyx;[45] although I perceive that Virgil, in the following line,[46] has taken sandyx to be a plant—

"Sandyx itself shall clothe the feeding lambs."

The price of sandyx[47] is one half that of sandarach; these two colours being the heaviest of all in weight.

### CHAP. 24.—SYRICUM.

Among the artificial colours, too, is syricum, which is used as an under-coating for minium, as already[48] stated. It is prepared from a combination of sinopis with sandyx.

### CHAP. 25.—ATRAMENTUM.

Atramentum,[49] too, must be reckoned among the artificial colours, although it is also derived in two ways from the earth.

[44] In B. xxxiv. c. 55. "Pliny speaks of different shades of sandaraca, the pale, or massicot, (yellow oxide of lead), and a mixture of the pale with minium. It also signified Realgar, or red sulphuret of arsenic." —Wornum, in Smith's Dict. Antiq. Art. *Colores*.

[45] Sir H. Davy supposes this colour to have approached our crimson. In painting, it was frequently glazed with purple, to give it an additional lustre.

[46] Ecl. iv. l. 45. "Sponte suâ sandyx pascentes vestiet agnos." Ajasson thinks that "Sandyx" may have been a name common to two colouring substances, a vegetable and a mineral, the former being our madder. Beckmann is of the same opinion, and that Virgil has committed no mistake in the line above quoted. Hist. Inv. Vol. II. p. 110. *Bohn's Edition*. See also B. xxiv. c. 56.

[47] The form "*sand*," in these words, Ajasson considers to be derived either from "Sandes," the name of Hercules in Asia Minor, or at least in Lydia: or else from Sandak, the name of an ancestor of Cinyras and Adonis.

[48] In B. xxxiii. c. 40. According to Aetius, syricum was made by the calcination of pure ceruse, (similar to the "usta" above mentioned). He states also that there was no difference between sandyx and syricum, the former being the term generally used by medical men.

[49] "Black colouring substance."

For sometimes it is found exuding from the earth like the brine of salt-pits, while at other times an earth itself of a sulphurous colour is sought for the purpose. Painters, too, have been known to go so far as to dig up half-charred bones[50] from the sepulchres for this purpose.

All these plans, however, are new-fangled and troublesome; for this substance may be prepared, in numerous ways, from the soot that is yielded by the combustion of resin or pitch; so much so, indeed, that manufactories have been built on the principle of not allowing an escape for the smoke evolved by the process. The most esteemed black,[51] however, that is made in this way, is prepared from the wood of the torch-pine.

It is adulterated by mixing it with the ordinary soot from furnaces and baths, a substance which is also employed for the purpose of writing. Others, again, calcine dried wine-lees, and assure us that if the wine was originally of good quality from which the colour is made, it will bear comparison with that of indicum.[52] Polygnotus and Micon, the most celebrated painters of Athens, made their black from grape-husks, and called it "tryginon."[53] Apelles invented a method of preparing it from burnt ivory, the name given to it being "elephantinon."

We have indicum also, a substance imported from India, the composition of which is at present unknown to me.[54] Dyers, too, prepare an atramentum from the black inflorescence which adheres to the brazen dye-pans. It is made also from logs of torch-pine, burnt to charcoal and pounded in a mortar. The sæpia, too, has a wonderful property of secreting a black liquid;[55] but from this liquid no colour is prepared. The preparation of every kind of atramentum is completed by exposure to the sun;

[50] "Carbones infectos." The reading is very doubtful. It may possibly mean "charred bones tainted with dirt." This would make an inferior ivory-black. The earth before-mentioned is considered by Ajasson to be a deuto-sulphate of copper, a solution of which, in gallic acid, is still used for dyeing black. The water near copper-mines would very probably be also highly impregnated with it. Beckmann considers these to have been vitriolic products. Vol. II. p. 265.

[51] Our Lamp-black. Vitruvius describes the construction of the manufactories above alluded to. [52] Probably, our Chinese, or Indian ink, a different substance from the indicum of Chapter 27.

[53] From τρύξ, "grape-husks," or "wine-lees."

[54] Indian ink is a composition of fine lamp-black and size.

[55] See B. ii. c. 29. Sepia, for sepic drawing, is now prepared from these juices.

the black, for writing, having an admixture of gum, and that for coating walls, an admixture of glue. Black pigment that has been dissolved in vinegar is not easily effaced by washing.

### CHAP. 26.—PURPURISSUM.

Among the remaining colours which, as already stated,[56] owing to their dearness are furnished by the employer, purpurissum holds the highest rank. For the purpose of preparing it, argentaria or silver chalk[57] is dyed along with purple[58] cloth, it imbibing the colour more speedily than the wool. The best of all is that which, being thrown the very first into the boiling cauldron, becomes saturated with the dye in its primitive state. The next best in quality is that which has been put into the same liquor, after the first has been removed. Each time that this is done, the quality becomes proportionally deteriorated, owing, of course, to the comparative thinness of the liquid. The reason that the purpurissum of Puteoli is more highly esteemed than that of Tyre, Gætulia, or Laconia, places which produce the most precious kinds of purple, is the fact that it combines more readily with hysginum,[59] and that it is made to absorb the colouring liquid of madder. The worst purpurissum is that of Lanuvium.[60]

The price of purpurissum is from one to thirty denarii per pound. Persons who use it in painting, place a coat of sandyx beneath; a layer on which of purpurissum with glair of egg, produces all the brilliant tints of minium. If, on the other hand, it is their object to make a purple, they lay a coat of cæruleum[61] beneath, and purpurissum, with egg,[62] upon it.

### CHAP. 27.—INDICUM.

Next in esteem to this is indicum,[63] a production of India, being a slime[64] which adheres to the scum upon the reeds there.

[56] In Chapter 12 of this Book.

[57] Plate powder. See B. xvii. c. 4, and Chapter 58 of this Book.

[58] See B. ix. c. 60.

[59] See B. ix. c. 65, and B. xxi. cc. 38, 97. According to Vitruvius, it is a colour between scarlet and purple. It may possibly have been made from woad.

[60] See B. iii. c. 16.

[61] See B. xxxiii. c. 57.

[62] White of egg, probably.

[63] Indigo, no doubt, is the colour meant. See B. xxxiii. c. 57.

[64] It is the produce of the Indigofera tinctoria, and comes from Bengal more particularly, Beckmann and Dr. Bancroft have each investigated this subject at great length, and though Pliny is greatly mistaken as to the

When powdered, it is black in appearance, but when diluted in water it yields a marvellous combination of purple and cæruleum. There is another[65] kind, also, which floats upon the surface of the pans in the purple dye-houses, being the scum which rises upon the purple dye. Persons who adulterate it, stain pigeons' dung with genuine indicum, or else colour Selinusian[66] earth, or anularian[67] chalk with woad.

The proper way of testing indicum is by laying it on hot coals, that which is genuine producing a fine purple flame, and emitting a smell like that of sea-water while it smokes: hence it is that some are of opinion that it is gathered from the rocks on the sea-shore. The price of indicum is twenty denarii per pound. Used medicinally, it alleviates cold shiverings and defluxions, and acts as a desiccative upon sores.

### CHAP. 28.—ARMENIUM; ONE REMEDY.

Armenia sends us the colouring substance which is known to us by its name.[68] This also is a mineral, which admits of being dyed, like chrysocolla,[69] and is best when it most closely resembles that substance, the colour being pretty much that of cæruleum. In former times it was sold at thirty sesterces per pound; but there has been found of late in the Spanish provinces a sand which admits of a similar preparation, and consequently armenium has come to be sold so low as at six denarii per pound. It differs from cæruleum in a certain degree of whiteness, which causes the colour it yields to be thinner in comparison. The only use made of it in medicine is for the purpose of giving nourishment to the hair, that of the eyelids in particular.

### CHAP. 29.—APPIANUM.

There are also two colours of very inferior quality, which have been recently discovered. One of these is the green

mode in which the drug was produced, they agree in the conclusion that his "indicum" was real indigo, and not, as some have supposed, a pigment prepared from *isatis*, or woad.

[65] This passage, similar in many respects to the account given by Dioscorides, is commented on at great length by Beckmann, Hist. Inv. Vol. II. p. 263. *Bohn's Edition.*

[66] See Chapter 56 of this Book.

[67] See Chapter 30 of this Book.

[68] "Armenium." Armenian bole is still used for colouring tooth-powder and essence of anchovies.

[69] See B. xxxiii. c. 26.

known as "appianum,"[70] a fair imitation of chrysocolla; just as though we had not had to mention sufficient of these counterfeits already. This colour, too, is prepared from a green chalk, the usual price of it being one sesterce per pound.

### CHAP. 30.—ANULARIAN WHITE.

The other colour is that known as "anularian[71] white;" being used for giving a brilliant whiteness to the figures of females.[72] This, too, is prepared from a kind of chalk, combined with the glassy paste which the lower classes wear in their rings:[73] hence it is, that it has the name "anulare."

### CHAP. 31. (7.)—WHICH COLOURS DO NOT ADMIT OF BEING LAID ON A WET COATING.

Those among the colours which require a dry, cretaceous, coating,[74] and refuse to adhere to a wet surface, are purpurissum, indicum, cæruleum,[75] melinum, orpiment, appianum, and ceruse. Wax, too, is stained with all these colouring substances for encaustic painting;[76] a process which does not admit of

[70] So called, probably, either from the place where it was made, or from the person who first discovered it. Some commentators have suggested that it should be "apian" green, meaning "parsley" colour.

[71] So called from "anulus," a "ring," as mentioned below.

[72] "Quo muliebres picturæ illuminantur." The meaning of this passage is obscure. It would seem almost to apply to paintings, but Beckmann is of opinion that the meaning is, "This is the beautiful white with which the ladies paint or ornament themselves."—Hist. Inv. Vol. II. p. 261. *Bohn's Edition.*

[73] Beckmann suggests that it was so called from its being one of the sealing earths, "anulus" being the name of a signet ring. Vol. II. p. 260.

[74] "Cretulam." [75] See B. xxxiii. c. 57.

[76] See Chapter 39, where this process is more fully described. "'*Ceræ*,' or 'waxes,' was the ordinary term for painters' colours among the Romans, but more especially encaustic colours, which were probably kept dry in boxes, and the wet brush or pencil was rubbed upon them when colour was required, or they were moistened by the artist previous to commencing work. From the term 'ceræ' it would appear that wax constituted the principal ingredient in the colouring vehicle used; but this does not necessarily follow, and it is very improbable that it did; there must have been a great portion of gum or resin in the colours, or they could not have hardened. Wax was undoubtedly a most essential ingredient, since it apparently prevents the colours from cracking. 'Ceræ' therefore might originally simply mean colours which contained wax, in contradistinction to those which did not; but was afterwards applied generally by the Romans to the colours of painters."—Wornum, Smith's Dict. Antiq. Art. *Painting.*

being applied to walls, but is in common use[77] by way of ornament for ships of war, and, indeed, merchant-ships at the present day. As we go so far as to paint these vehicles of danger, no one can be surprised if we paint our funeral piles as well, or if we have our gladiators conveyed in handsome carriages to the scene of death, or, at all events, of carnage. When we only contemplate this extensive variety of colours, we cannot but admire the ingenuity displayed by the men of former days.

### CHAP. 32.—WHAT COLOURS WERE USED BY THE ANCIENTS IN PAINTING.

It was with four colours only,[78] that Apelles,[79] Echion, Melanthius, and Nicomachus, those most illustrous painters, executed their immortal works; melinum[80] for the white, Attic sil[81] for the yellow, Pontic sinopis for the red, and atramentum for the black;[82] and yet a single picture of theirs has sold before now for the treasures of whole cities. But at the present day, when purple is employed for colouring walls even, and when India sends to us the slime[83] of her rivers, and the corrupt blood of her dragons[84] and her elephants, there is no such thing as a picture of high quality produced. Everything, in fact, was superior at a time when the resources of art were so much fewer than they now are. Yes, so it is; and the reason is, as we

[77] Called "Inceramenta navium," in Livy, B. xxviii. c. 45. See also Chapters 39 and 41 of this Book.

[78] Pliny here commits a mistake, which may have arisen from an imperfect recollection, as Sir. H. Davy has supposed, of a passage in Cicero (Brutus, c. 18), which, however, quite contradicts the statement of Pliny. "In painting, we admire in the works of Zeuxis, Polygnotus, Timanthes, and those who used *four* colours only, the figure and the lineaments; but in the works of Echion, Nicomachus, Protogenes, and Apelles, *everything* is perfect." Indeed Pliny contradicts himself, for he speaks of *two* others colours used by the earliest painters, the *testa trita*, or ground earthenware, in Chapter 5 of this Book; and "cinnabaris," or vermilion, in B. xxxiii. c. 36. Also, in Chapter 21 of this Book he speaks of Eretrian earth as having been used by Nicomachus, and in Chapter 25 of ivory black as having been invented by Apelles.

[79] These painters will all be noticed in Chapter 36.

[80] See Chapter 19 of this Book. [81] See B. xxxiii. c. 56.

[82] Blue is here excluded altogether, unless under the term "atramentum" we would include black and blue indicum, or in other words, Indian ink and indigo. [83] See Chapter 27 of this Book.

[84] In allusion to "Dragon's blood." See B. xxxiii. c. 38.

have already stated,[85] that it is the material, and not the efforts of genius, that is now the object of research.

CHAP. 33.—AT WHAT TIME COMBATS OF GLADIATORS WERE FIRST PAINTED AND PUBLICLY EXHIBITED.

One folly, too, of this age of ours, in reference to painting, I must not omit. The Emperor Nero ordered a painting of himself to be executed upon canvass, of colossal proportions, one hundred and twenty feet in height; a thing till then unknown.[86] This picture was just completed when it was burnt by lightning, with the greater part of the gardens of Maius, in which it was exhibited.

A freedman of the same prince, on the occasion of his exhibiting a show of gladiators at Antium, had the public porticos hung, as everybody knows, with paintings, in which were represented genuine portraits of the gladiators and all the other assistants. Indeed, at this place, there has been a very prevailing taste for paintings for many ages past. C. Terentius Lucanus was the first who had combats of gladiators painted for public exhibition: in honour of his grandfather, who had adopted him, he provided thirty pairs of gladiators in the Forum, for three consecutive days, and exhibited a painting of their combats in the Grove of Diana.[87]

CHAP. 34. (8.)—THE AGE OF PAINTING; WITH THE NAMES OF THE MORE CELEBRATED WORKS AND ARTISTS, FOUR HUNDRED AND FIVE IN NUMBER.

I shall now proceed to enumerate, as briefly as possible, the more eminent among the painters; it not being consistent with the plan of this work to go into any great lengths of detail. It must suffice therefore, in some cases, to name the artist in a cursory manner only, and with reference to the account given of others; with the exception, of course, of the more famous pro-

[85] In Chapter 2 of this Book.

[86] From the construction of the passage, it is difficult to say whether he means to say that such colossal figures were till then unknown in painting, or whether that the use of canvass in painting was till then unknown. If the latter is the meaning, it is not exactly correct, though it is probable that the introduction of canvass for this purpose was comparatively late; there being no mention of its being employed by the Greek painters of the best periods.

[87] See B. iii. c. 9, B. xiv. c. 3, and B. xvi. c. 91.

ductions of the pictorial art, whether still in existence or now lost, all of which it will be only right to take some notice of. In this department, the ordinary exactness of the Greeks has been somewhat inconsistent, in placing the painters so many Olympiads after the statuaries and toreutic[88] artists, and the very first of them so late as the ninetieth Olympiad; seeing that Phidias himself is said to have been originally a painter, and that there was a shield at Athens which had been painted by him: in addition to which, it is universally agreed that in the eighty-third Olympiad, his brother Panænus[89] painted, at Elis,[90] the interior of the shield of Minerva, which had been executed by Colotes,[91] a disciple of Phidias and his assistant in the statue of the Olympian Jupiter.[92] And then besides, is it not equally admitted that Candaules, the last Lydian king of the race of the Heraclidæ, very generally known also by the name of Myrsilus, paid its weight in gold for a picture by the painter Bularchus,[93] which represented the battle fought by him with the Magnetes? so great was the estimation in which the art was already held. This circumstance must of necessity have happened about the period of our Romulus; for it was in the eighteenth Olympiad that Candaules perished, or, as some writers say, in the same year as the death of Romulus; a thing which clearly demonstrates that even at that early period the art had already become famous, and had arrived at a state of great perfection.

If, then, we are bound to admit this conclusion, it must be equally evident that the commencement of the art is of much earlier date, and that those artists who painted in monochrome,[94] and whose dates have not been handed down to us, must have flourished at even an anterior period; Hygiænon, namely, Dinias, Charmadas,[95] Eumarus, of Athens, the first who

[88] "Toreutæ." For the explanation of this term, see end of B. xxxiii.

[89] In reality he was cousin or nephew of Phidias, by the father's side, though Pausanias, B. v. c. 11, falls into the same error as that committed by Pliny. He is mentioned likewise by Strabo and Æschines.

[90] See B. xxxvi. c. 55.

[91] See B. xxxiv. c. 19.

[92] See B. xxxiv. c. 19.

[93] See B. vii. c. 39.

[94] Paintings with but one colour. "Monochromata," as we shall see in Chapter 36, were painted at all times, and by the greatest masters. Those of Zeuxis corresponded with the *Chiariscuri* of the Italians, light and shade being introduced with the highest degree of artistic skill.

[95] These several artists are quite unknown, being mentioned by no other author.

distinguished the sexes[96] in painting, and attempted to imitate every kind of figure; and Cimon[97] of Cleonæ, who improved upon the inventions of Eumarus.

It was this Cimon, too, who first invented foreshortenings,[98] or in other words, oblique views of the figure, and who first learned to vary the features by representing them in the various attitudes of looking backwards, upwards, or downwards. It was he, too, who first marked the articulations of the limbs, indicated the veins, and gave the natural folds and sinuosities to drapery. Panænus, too, the brother of Phidias, even executed a painting[99] of the battle fought by the Athenians with the Persians at Marathon: so common, indeed, had the employment of colours become, and to such a state of perfection had the art arrived, that he was able to represent, it is said, the portraits of the various generals who commanded at that battle, Miltiades, Callimachus, and Cynægirus, on the side of the Athenians, and, on that of the barbarians, Datis and Artaphernes.

### CHAP. 35. (9.)—THE FIRST CONTEST FOR EXCELLENCE IN THE PICTORIAL ART.

And not only this, but, during the time that Panænus flourished, there were contests in the pictorial art instituted at Corinth and Delphi. On the first occasion, Panænus himself entered the lists, at the Pythian Games, with Timagoras of Chalcis, by whom he was defeated; a circumstance which is recorded in some ancient lines by Timagoras himself, and an undoubted proof that the chroniclers are in error as to

[96] It is pretty clear, from vases of a very ancient date, that it is not the sexual distinction that is here alluded to. Eumarus, perhaps, may have been the first to give to each sex its characteristic style of design, in the compositions, draperies, attitudes, and complexions of the respective sexes. Wornum thinks that, probably, Eumarus, and certainly, Cimon, belonged to the class of ancient tetrachromists, or polychromists, painting in a variety of colours, without a due, or at least a partial, observance of the laws of light and shade. Smith's Dict. Antiq. Art. *Painting*.

[97] He is mentioned also by Ælian. Böttiger is of opinion that he flourished about the 80th Olympiad. It is probable, however, that he lived long before the age of Polygnotus; but some time after that of Eumarus. Wornum thinks that he was probably a contemporary of Solon, a century before Polygnotus.

[98] "Catagrapha."

[99] This picture was placed in the Pœcile at Athens, and is mentioned also by Pausanias, B. i. c. 15, and by Æschines, Ctesiph. s. 186.

the date of the origin of painting. After these, and yet before the ninetieth Olympiad, there were other celebrated painters, Polygnotus of Thasos,[1] for instance, who was the first to paint females in transparent drapery, and to represent the head covered with a parti-coloured head-dress. He, too, was the first to contribute many other improvements to the art of painting, opening the mouth, for example, showing the teeth, and throwing expression into the countenance, in place of the ancient rigidity of the features.

There is a picture by this artist in the Portico[2] of Pompeius, before the Curia that was built by him; with reference to which, there is some doubt whether the man represented with a shield is in the act of ascending or descending. He also embellished the Temple[3] at Delphi, and at Athens the Portico known as the Pœcile;[4] at which last he worked gratuitously, in conjunction with Micon,[5] who received pay for his labours. Indeed Polygnotus was held in the higher esteem of the two; for the Amphictyons,[6] who form the general Council of Greece, decreed that he should have his lodging furnished him at the public expense.

There was also another Micon, distinguished from the first Micon by the surname of "the younger," and whose daughter Timarete[7] also practised the art of painting.

### CHAP. 36.—ARTISTS WHO PAINTED WITH THE PENCIL.

In the ninetieth Olympiad lived Aglaophon,[8] Cephisodorus, Erillus, and Evenor, the father of Parrhasius, one of the

[1] See B. vii. c. 57. (Vol. II. p. 233), where he is mentioned as an Athenian. It is not improbable that he became a citizen of Athens in the seventy-ninth Olympiad, B.C. 463, when Thasos was brought under the power of Athens, and, as Sillig suggests, at the solicitation of Cimon, the son of Miltiades. It is generally supposed that he flourished about the eightieth Olympiad.

[2] Belonging to the Theatre of Pompey, in the Ninth Region of the City.

[3] With scenes from the Trojan War, and the adventures of Ulysses.

[4] Or "Variegated;" from its various pictures. [5] See B. xxxiii. c. 56.

[6] See B. vii. c. 37. [7] She is again mentioned in Chapter 40.

[8] He was a native of Thasos, and father and instructor of Polygnotus. As Pliny has already stated that Polygnotus flourished *before* the ninetieth Olympiad, there is an inconsistency in his making mention of the son as flourishing before the father. Hence Sillig, with Böttiger, is inclined to think that there were two artists of this name, one about the seventieth, and the other about the ninetieth Olympiad, the former being the father of Polygnotus.

greatest of painters, and of whom we shall have to speak when we come to the period at which he flourished. All these were artists of note, but not sufficiently so to detain us by any further details, in our haste to arrive at the luminaries of the art; first among whom shone Apollodorus of Athens, in the ninety-third Olympiad. He was the first to paint objects as they really appeared; the first too, we may justly say, to confer glory[9] by the aid of the pencil.[10] Of this artist there is a Priest in Adoration, and an Ajax struck by Lightning, a work to be seen at Pergamus at the present day: before him, there is no painting of any artist now to be seen which has the power of rivetting the eye.

The gates of art being now thrown open by Apollodorus, Zeuxis of Heraclea[11] entered upon the scene, in the fourth year of the ninety-fifth Olympiad, destined to lead the pencil—for it is of the pencil that we are still speaking—a pencil for which there was nothing too arduous, to a very high pitch of glory. By some writers he is erroneously placed in the eighty-ninth Olympiad, a date that must of necessity be reserved for Demophilus of Himera and Neseus of Thasos, of one of whom, it is uncertain which, Zeuxis was the pupil. It was in reference to him that Apollodorus, above-mentioned, wrote a verse to the effect, that Zeuxis had stolen the art from others and had taken it all to himself.[12] Zeuxis also acquired such a vast amount of wealth, that, in a spirit of ostentation, he went so far as to parade himself at Olympia with his name embroidered on the checked pattern of his garments in letters of gold. At a later period, he came to the

[9] "Primusque gloriam penicillo jure contulit." Wornum considers that "the rich effect of the combination of light and shade with colour is clearly expressed in these words."—Smith's Dict. Antiq. Art. *Painting.* This artist, who was noted for his arrogance, is mentioned by other ancient writers.

[10] "Penicillus." This was the hair-pencil or brush, which was used by one class of painters, in contradistinction to the stylus or cestrum used for spreading the wax-colours. Painters with the brush used what we should term "water-colours;" oil-colours, in our sense of the word, being unknown to the ancients.

[11] In "Magna Græcia," near Crotona, it is supposed. Tzetzes styles him as an Ephesian.

[12] This is *probably* the meaning of the words—"Artem ipsis ablatam Zeuxim ferre secum." It is doubtful whether "ipsis" or "ipsi" is the correct reading.

determination to give away his works, there being no price high enough to pay for them, he said. Thus, for instance, he gave an Alcmena to the people of Agrigentum, and a Pan to Archelaüs.[13] He also painted a Penelope, in which the peculiar character of that matron appears to be delineated to the very life; and a figure of an athlete, with which he was so highly pleased, that he wrote beneath it the line which has since become so famous, to the effect that it would be easier to find fault with him than to imitate him.[14] His Jupiter seated on the throne, with the other Deities standing around him, is a magnificent production: the same, too, with his Infant Hercules strangling the Dragons, in presence of Amphitryon and his mother Alcmena, who is struck with horror. Still, however, Zeuxis is generally censured for making the heads and articulations of his figures out of proportion. And yet, so scrupulously careful was he, that on one occasion, when he was about to execute a painting for the people of Agrigentum,[15] to be consecrated in the Temple of the Lacinian Juno there, he had the young maidens of the place stripped for examination, and selected five of them, in order to adopt in his picture the most commendable points in the form of each. He also painted some monochromes in white.[16]

The contemporaries and rivals of Zeuxis were Timanthes, Androcydes, Eupompus, and Parrhasius. (10.) This last, it is said, entered into a pictorial contest with Zeuxis, who represented some grapes, painted so naturally that the birds flew towards the spot where the picture was exhibited. Parrhasius, on the other hand, exhibited a curtain, drawn with such singular truthfulness, that Zeuxis, elated with the judgment which had been passed upon his work by the birds, haughtily demanded that the curtain should be drawn aside to let the picture be seen. Upon finding his mistake, with a great degree of ingenuous candour he admitted that he had been surpassed, for that whereas he himself had only deceived the birds, Parrhasius had deceived him, an artist.

[13] King of Macedonia.

[14] *Μωμήσεται τις μᾶλλον ἢ μιμήσεται.* This line is attributed by Plutarch to Apollodorus.

[15] Cicero and Dionysius of Halicarnassus say that this picture was executed at Crotona, and not at Agrigentum. It is generally supposed to have been the painting of Helena, afterwards mentioned by Pliny.

[16] "Ex albo." "That is, in grey and grey, similar to the Chiariscuri of the Italians."—Wornum, in Smith's Dict. Antiq. Art. *Painting*.

There is a story, too, that at a later period, Zeuxis having painted a child carrying grapes, the birds came to peck at them; upon which, with a similar degree of candour, he expressed himself vexed with his work, and exclaimed—"I have surely painted the grapes better than the child, for if I had fully succeeded in the last, the birds would have been in fear of it." Zeuxis executed some figures also in clay,[17] the only works of art that were left behind at Ambracia, when Fulvius Nobilior[18] transported the Muses from that city to Rome. There is at Rome a Helena by Zeuxis, in the Porticos of Philippus,[19] and a Marsyas Bound, in the Temple of Concord[20] there.

Parrhasius of Ephesus also contributed greatly to the progress of painting, being the first to give symmetry to his figures, the first to give play and expression to the features, elegance to the hair, and gracefulness to the mouth: indeed, for contour, it is universally admitted by artists that he bore away the palm. This, in painting, is the very highest point of skill. To paint substantial bodies and the interior of objects is a great thing, no doubt, but at the same time it is a point in which many have excelled: but to make the extreme outline of the figure, to give the finishing touches to the painting in rounding off the contour, this is a point of success in the art which is but rarely attained. For the extreme outline, to be properly executed, requires to be nicely rounded, and so to terminate as to prove the existence of something more behind it, and thereby disclose that which it also serves to hide.

Such is the merit conceded to Parrhasius by Antigonus[21] and Xenocrates,[22] who have written on the art of painting; and in this as well as in other points, not only do they admit his excellence, but enlarge upon it in terms of the highest commendation. There are many pen sketches by him still in existence, both upon panel and on parchment, from the study of which, even artists, it is said, may greatly profit.

Notwithstanding these points of excellence, however, Parrhasius seems comparatively inferior to himself in giving the

[17] "Figlina opera." It is not improbable that this may allude to the painting of fictile vases.

[18] A.U.C. 666. As to this expedition of Fulvius Nobilior, see Livy, B. xxxviii. [19] Of Philippus Marcius, in the Ninth Region of the City.

[20] In the Eighth Region of the City. [21] See end of B. xxxiii.

[22] See end of B. xxxiii. and B. xxxiv.

proper expression to the middle of the body. In his allegorical picture of the People of Athens, he has displayed singular ingenuity in the treatment of his subject; for in representing it, he had to depict it as at once fickle, choleric, unjust, and versatile; while, again, he had equally to show its attributes of implacability[23] and clemency, compassionateness and pride, loftiness and humility, fierceness and timidity—and all these at once. He painted a Theseus also, which was formerly in the Capitol at Rome, a Naval Commander[24] wearing a cuirass, and, in one picture, now at Rhodes, figures of Meleager, Hercules, and Perseus. This last painting, though it has been thrice struck by lightning, has escaped being effaced, a circumstance which tends to augment the admiration which it naturally excites. He painted an Archigallus[25] also, a picture which the Emperor Tiberius greatly admired. According to Deculo,[26] that prince had it shut up in his chamber, the price at which it was valued being six hundred thousand sesterces.

Parrhasius also painted a Thracian Nurse, with an Infant in her arms, a Philiscus,[27] a Father Liber[28] attended by Virtue, Two Children, in which we see pourtrayed the careless simplicity of childhood, and a Priest attended by a Boy, with a censer and chaplet. There are also two most noble pictures by him; one of which represents a Runner[29] contending for the prize, completely armed, so naturally depicted that he has all the appearance of sweating. In the other we see the Runner taking off his armour, and can fancy that we hear him panting aloud for breath. His Æneas, Castor, and Pollux, all represented in the same picture, are highly praised; his Telephus also, and his Achilles, Agamemnon, and Ulysses.

Parrhasius was a most prolific artist, but at the same time there was no one who enjoyed the glory conferred upon him by his talent with greater insolence and arrogance. It was in this

[23] The antithesis seems to require here the reading "inexorabilem," instead of "exorabilem."

[24] "Navarchum."

[25] The "Chief of the Galli," or high priest of Cybele.

[26] See end of B. x.

[27] Possibly the person mentioned in B. xi. c. 9, or perhaps the Tragic writer of this name, mentioned in the present Chapter.

[28] Bacchus.

[29] "Hoplites." A runner in panoply, or complete armour, at the Olympic Games.

spirit, that he went so far as to assume certain surnames, and to call himself "Habrodiætus;"[30] while in some other verses he declared himself to be the "prince of painters," and asserted that in him the art had arrived at perfection. But above all things, it was a boast with him that he had sprung from the lineage of Apollo, and that he had painted his Hercules, a picture now at Lindos, just as he had often seen him in his sleep. It was in this spirit, too, that upon being defeated by Timanthes, at Samos, by a great majority of votes, the subject of the picture being Ajax and the Award of the Arms,[31] he declared, in the name of his hero, that he felt himself quite disgraced on thus seeing himself a second time defeated by an unworthy opponent. He painted also some smaller pictures of an immodest nature, indulging his leisure in such prurient fancies as these.[32]

As to Timanthes,[33] he was an artist highly gifted with genius, and loud have some of the orators[34] been in their commendations of his Iphigenia, represented as she stands at the altar awaiting her doom. Upon the countenance of all present, that of her uncle[35] in particular, grief was depicted; but having already exhausted all the characteristic features of sorrow, the artist adopted the device of veiling the features of the victim's father,[36] finding himself unable adequately to give expression to his feelings. There are also some other proofs of his genius, a Sleeping Cyclops, for instance, which he has painted upon a small panel; but, being desirous to convey an idea of his gigantic stature, he has painted some Satyrs near him measuring his thumb with a thyrsus. Indeed, Timanthes is the only one among the artists in whose works there is always something more implied by the pencil than is expressed, and whose execution, though of the very highest quality, is always surpassed by the inventiveness of his genius. He has also painted the figure of a Hero, a master-piece of skill, in which he has carried the art to the very highest pitch of per-

[30] The "Liver in luxury." Athenæus, B. xii., confirms this statement, and gives some lines which Parrhasius wrote under certain of his works.

[31] Of Achilles, which were awarded to Ulysses in preference to Ajax.

[32] We learn from Suetonius that Tiberius possessed a Meleager and Atalanta by Parrhasius, of this nature.

[33] Said by Eustathius to have been a native of Sicyon, but by Quintilian, of Cythnos.

[34] Cicero, for instance, De Oratore, c. 22, s. 74.

[35] Menelaüs.

[36] Agamemnon.

fection, in the delineation of the warrior: this last-mentioned work is now at Rome, in the Temple of Peace.[37]

It was at this period, too, that Euxinidas had for his pupil Aristides,[38] who became a most illustrious artist; and that Eupompus instructed Pamphilus, who afterwards became the instructor of Apelles. There is by Eupompus, a Victor in a gymnastic contest, holding a palm. So high was the reputation of this artist, that he established a school of painting, and so divided the art into three styles; whereas till then there had been but two, known respectively as the Helladic[39] and the Asiatic. In honour of him, a native of Sicyon by birth, the Helladic school was divided into two, and from this period there were three distinct styles recognized, the Ionic, the Sicyonian, and the Attic.

We have, by Pamphilus,[40] a picture representing the Alliance and the Battle that was fought at Phlius;[41] the Victory[42] also that was gained by the Athenians, and a representation of Ulysses in his ship. He was a Macedonian by birth, but was the first painter who was also skilled in all the other sciences, arithmetic and geometry more particularly, without the aid of which he maintained that the pictorial art could not attain perfection. He gave instruction to no one for a smaller sum than one talent, at the rate of five hundred denarii per annum,[43] and this fee both Apelles and Melanthius paid. It was through his influence that, first at Sicyon, and then throughout the whole of Greece, all children of free birth were taught the graphic[44] art, or in other words, the art of depicting upon boxwood, before all others; in consequence of which this came to be looked upon as the first step in the liberal arts. It

[37] Built near the Forum, by Vespasian, according to Suetonius.

[38] A native of Thebes. A full account of him will be given in the course of this Chapter.

[39] Or "Grecian."

[40] He was a native of Amphipolis in Macedonia.

[41] Phlius was the chief town of Phliasia, in the north-east of Peloponnesus. It seems to be quite unknown to what events Pliny here alludes.

[42] Possibly the naval victory gained by the Athenians under Chabrias near Naxos, in the first year of the 101st Olympiad.

[43] Which would make the course of study, as M. Ian says, extend over a period of twelve years.

[44] "Graphice;" equivalent, perhaps, to our word "drawing." "The elementary process consisted in drawing lines or outlines with the graphis, (or stylus) upon tablets of box; the first exercise was probably to draw a simple line."—Wornum, in Smith's Dict. Antiq. Art. *Painting*.

is the fact, however, that this art has always been held in high estimation, and cultivated by persons of free birth, and that, at a more recent period, men of rank even began to pursue it; it having always been forbidden that slaves should receive instruction in it. Hence it is, that neither in painting nor in the toreutic[45] art has there been any celebrated work executed by a slave.

In the hundred and seventh Olympiad, flourished Aëtion and Therimachus.[46] By the former we have some fine pictures; a Father Liber,[47] Tragedy and Comedy, Semiramis from the rank of a slave elevated to the throne, an Old Woman bearing torches, and a New-made Bride, remarkable for the air of modesty with which she is pourtrayed.

But it was Apelles[49] of Cos, in the hundred and twelfth Olympiad, who surpassed all the other painters who either preceded or succeeded him. Single-handed, he contributed more to painting than all the others together, and even went so far as to publish some treatises on the principles of the art. The great point of artistic merit with him was his singular charm of gracefulness,[50] and this too, though the greatest of painters were his contemporaries. In admiring their works and bestowing high eulogiums upon them, he used to say that there was still wanting in them that ideal of beauty[51] so peculiar to himself, and known to the Greeks as "Charis;"[52] others, he said, had acquired all the other requisites of perfection, but in this one point he himself had no equal. He also asserted his claim to another great point of merit: admiring a picture by Protogenes, which bore evident marks of unbounded laboriousness and the most minute finish, he remarked that in every respect Protogenes was fully his equal, or perhaps his superior, except in this, that he himself knew when to take his hand off a picture—a memorable lesson, which teaches us that over-carefulness may be productive of bad results. His candour

[45] See end of B. xxxiii.

[46] Both of whom are mentioned as statuaries, in the early part of B. xxxiv. c. 19.

[47] Bacchus.

[49] The generality of Greek writers represent him as a native either of Ephesus, or of Colophon.

[50] "Venustas." This word, it has been remarked, will hardly bear a definition. It has been rendered "grace," "elegance," "beauty."

[51] "Venerem." The name of the Goddess of Beauty.

[52] "Gracefulness."

too, was equal to his talent; he acknowledged the superiority of Melanthius in his grouping, and of Asclepiodorus in the niceness of his measurements, or, in other words, the distances that ought to be left between the objects represented.

A circumstance that happened to him in connection with Protogenes is worthy of notice. The latter was living at Rhodes, when Apelles disembarked there, desirous of seeing the works of a man whom he had hitherto only known by reputation. Accordingly, he repaired at once to the studio; Protogenes was not at home, but there happened to be a large panel upon the easel ready for painting, with an old woman who was left in charge. To his enquiries she made answer, that Protogenes was not at home, and then asked whom she should name as the visitor. "Here he is," was the reply of Apelles, and seizing a brush, he traced with colour upon the panel an outline of a singularly minute fineness. Upon his return, the old woman mentioned to Protogenes what had happened. The artist, it is said, upon remarking the delicacy of the touch, instantly exclaimed that Apelles must have been the visitor, for that no other person was capable of executing anything so exquisitely perfect. So saying, he traced within the same outline a still finer outline, but with another colour, and then took his departure, with instructions to the woman to show it to the stranger, if he returned, and to let him know that this was the person whom he had come to see. It happened as he anticipated; Apelles returned, and vexed at finding himself thus surpassed, he took up another colour and split[53] both of the outlines, leaving no possibility of anything finer being executed. Upon seeing this, Protogenes admitted that he was defeated, and at once flew to the harbour to look for his guest.

[53] "Secuit." Possibly meaning that he drew another outline in each of these outlines. The meaning, however, is doubtful, and has occasioned much trouble to the commentators. Judging from the words used by Apelles and Protogenes, each in his message, it is not unlikely that the "linea" or outline drawn by each was a profile of himself, and that the profile of Protogenes was drawn within that of Apelles; who, on the second occasion, drew a third profile between the other two, but with a still finer line than either of them. In Dr. Smith's Dictionary of Biography, *art.* Apelles, it is thus explained: "The most natural explanation of this difficult passage seems to be, that down the middle of the first line of Apelles, Protogenes drew another, so as to divide it into two parallel halves, and that Apelles again divided the line of Protogenes in the same manner."

He thought proper, too, to transmit the panel to posterity, just as it was, and it always continued to be held in the highest admiration by all, artists in particular. I am told that it was burnt in the first fire which took place at Cæsar's palace on the Palatine Hill; but in former times I have often stopped to admire it. Upon its vast surface it contained nothing whatever except the three outlines, so remarkably fine as to escape the sight: among the most elaborate works of numerous other artists it had all the appearance of a blank space; and yet by that very fact it attracted the notice of every one, and was held in higher estimation than any other painting there.

It was a custom with Apelles, to which he most tenaciously adhered, never to let any day pass, however busy he might be, without exercising himself by tracing some outline or other; a practice which has now passed into a proverb.[54] It was also a practice with him, when he had completed a work, to exhibit it to the view of the passers-by in some exposed place;[55] while he himself, concealed behind the picture, would listen to the criticisms that were passed upon it; it being his opinion that the judgment of the public was preferable to his own, as being the more discerning of the two. It was under these circumstances, they say, that he was censured by a shoemaker for having represented the shoes with one shoe-string too little. The next day, the shoemaker, quite proud at seeing the former error corrected, thanks to his advice, began to criticize the leg; upon which Apelles, full of indignation, popped his head out, and reminded him that a shoemaker should give no opinion beyond the shoes, a piece of advice which has equally passed into a proverbial saying.[56] In fact, Apelles was a person of great amenity of manners, a circumstance which rendered him particularly agreeable to Alexander the Great, who would often come to his studio. He had forbidden himself, by public edict, as already stated,[57] to be represented by any other artist. On one occasion, however, when the prince was in his studio, talking a great deal about painting without knowing anything about it, Apelles quietly begged that he would quit the sub-

[54] The Latin form of which, as given by Erasmus, is "Nulla dies abeat, quin linea ducta supersit." "Let no day pass by, without an outline being drawn, and left in remembrance."

[55] "In pergulâ."

[56] "Ne sutor ultra crepidam." Equivalent to our saying, "Let not the shoemaker go beyond his last."

[57] In B. vii. c. 38.

ject, telling him that he would get laughed at by the boys who were there grinding the colours: so great was the influence which he rightfully possessed over a monarch, who was otherwise of an irascible temperament. And yet, irascible as he was, Alexander conferred upon him a very signal mark of the high estimation in which he held him; for having, in his admiration of her extraordinary beauty, engaged Apelles to paint Pancaste undraped,[58] the most beloved of all his concubines, the artist while so engaged, fell in love with her; upon which, Alexander, perceiving this to be the case, made him a present of her, thus showing himself, though a great king in courage, a still greater one in self-command, this action redounding no less to his honour than any of his victories. For in thus conquering himself, not only did he sacrifice his passions in favour of the artist, but even his affections as well; uninfluenced, too, by the feelings which must have possessed his favourite in thus passing at once from the arms of a monarch to those of a painter. Some persons are of opinion that Pancaste was the model of Apelles in his painting of Venus Anadyomene.[59]

It was Apelles too, who, courteous even to his rivals, first established the reputation of Protogenes at Rhodes. Held as he was in little estimation by his own fellow-countrymen, a thing that generally[60] is the case, Apelles enquired of him what price he set upon certain finished works of his, which he had on hand. Upon Protogenes mentioning some very trifling sum or other, Apelles made him an offer of fifty talents, and then circulated a report that he was buying these works in order to sell them as his own. By this contrivance, he aroused the Rhodians to a better appreciation of the merits of their artist, and only consented to leave the pictures with them upon their offering a still larger price.

He painted portraits, too, so exactly to the life, that a fact with which we are made acquainted by the writings of Apion the grammarian seems altogether incredible. One of those persons, he says, who divine events by the traits of the fea-

[58] Also known as "Campaspe," and "Pacate." She was the favourite concubine of Alexander, and is said to have been his first love.

[59] "Venus *rising* out of the waters." Athenæus says, B. xiii., that the courtesan Phryne was his model, whom, at the festival of Neptune, he had seen enter the sea naked at Eleusis.

[60] See Matthew xiii. 57; Mark vi. 4. "A prophet is not without honour, save in his own country."

tures, and are known as "metoposcopi,"[61] was enabled, by an examination of his portraits, to tell the year of their death, whether past or future, of each person represented. Apelles had been on bad terms with Ptolemæus in former times, when they formed part of the suite of Alexander. After Ptolemæus had become king of Egypt, it so happened that Apelles was driven by the violence of a tempest to Alexandria. Upon this, some of his rivals fraudulently suborned a jester, who was attached to the court, to carry him an invitation to dine with the king. Accordingly, Apelles attended; upon which Ptolemæus was highly indignant, and, summoning before him his stewards[62] of the household, requested that the artist would point out the one that had given him the invitation. Thus challenged, Apelles seized a piece of quenched charcoal that lay in the fire-place, and traced a likeness upon the wall, with such exactness, that the king, the moment he began it, recognized the features as those of the jester. He also painted a portrait of King Antigonus;[63] and as that monarch was blind of one eye, he invented a method of concealing the defect. With this object, he painted him in profile, in order that what in reality was wanting to the person might have the semblance of being wanting to the picture rather, he making it his care to show that side of the face only which he could show without any defect. Among his works, too, there are some figures representing persons at the point of death; but it is not easy to say which of his productions are of the highest order of excellence.

His Venus Rising from the Sea, known as the Venus Anadyomene,[64] was consecrated by the late Emperor Augustus in the Temple[65] of his father[66] Cæsar; a work which has been cele-

[61] "Physiognomists."

[62] "Vocatores"—more literally, his "inviting officers."

[63] Strabo mentions a portrait of Antigonus in the possession of the inhabitants of Cos.

[64] See Note 59 above. Propertius mentions this as his greatest work. B. III. El. 9, l. 11. "In Veneris tabulâ summam sibi ponit Apelles." "In his picture of Venus, Apelles produces his masterpiece." It is mentioned also by Ovid, Tristia, B. II. l. 527, and Art. Amor. B. III. l. 401. The line in B. III. l. 224 is also well known—

"Nuda Venus madidas exprimit imbre comas."
"And naked Venus wrings her dripping locks."

[65] In the Forum, in the Eighth Region of the City.

[66] His father by adoption.

brated in certain Greek lines,[67] which, though they have outlived it, have perpetuated its fame.[68] The lower part of the picture having become damaged, no one could be found to repair it; and thus did the very injury which the picture had sustained, redound to the glory of the artist. Time, however, and damp at last effaced the painting, and Nero, in his reign, had it replaced by a copy, painted by the hand of Dorotheus.[69] Apelles also commenced another Venus for the people of Cos,[70] which would have outshone even the former one; but death invidiously prevented its completion, nor could any one be found to complete the work in conformity with the sketches of the outline. He painted also, in the Temple of Diana at Ephesus, Alexander the Great wielding the Thunderbolts, a picture for which he received twenty talents of gold. The fingers have all the appearance of projecting from the surface, and the lightning seems to be darting from the picture. And then, too, let the reader bear in mind that all these works were executed by the aid of four[71] colours only. The price paid in golden coin for this picture was ascertained by weight,[72] there being no specific sum agreed upon.

He also painted a Procession of the Megabyzus,[73] the priest of Diana at Ephesus; and a Clitus[74] on Horseback, hastening to the combat, his Armour-bearer handing him his helmet at his command. How many times he painted Alexander and Philip, it would be quite superfluous to attempt to enumerate. At Samos, there is a Habron[75] by him, that is greatly admired; at Rhodes a Menander,[76] king of Caria, and an Ancæus;[77] at

[67] There are several Epigrams descriptive of it in the Greek Anthology.

[68] This, probably, is the meaning of "Tali opere dum laudatur victo sed illustrato," words which have given much trouble to the commentators.

[69] Nothing further seems to be known of him.

[70] "Cois." The first one was also painted for the people of Cos, by whom it was ultimately sold to Augustus.

[71] See Chapter 32 of this Book. That this is an erroneous assertion, has been shown in Note 78 above.

[72] Probably the weight of the panel, frame, and ornamental appendages.

[73] This word was probably a title, meaning "Keeper of the temple." Strabo tells us that the "megabyzi," or as he calls them, the "megalobyzi," were eunuch priests in the Temple of Artemis, or Diana, at Ephesus.

[74] The favourite of Alexander, by whom he was afterwards slain.

[75] Probably the name of a rich sensualist who lived at Argos. A son of the Attic orator Lycurgus, one of the sophists, also bore this name.

[76] This name is supposed by Sillig to have been inserted erroneously, either by Pliny, or by his transcribers.

[77] Either the Argonaut of that name, who was killed by the Calcdonian

Alexandria, a Gorgosthenes, the Tragedian; and at Rome, a Castor and Pollux, with figures of Victory and Alexander the Great, and an emblematical figure of War with her hands tied behind her, and Alexander seated in a triumphal car; both of which pictures the late Emperor Augustus, with a great degree of moderation[78] and good taste, consecrated in the most frequented parts of his Forum: the Emperor Claudius, however, thought it advisable to efface the head of Alexander in both pictures, and substitute likenesses of his predecessor Augustus. It is by his hand too, it is generally supposed, that the Hercules, with the face averted, now in the Temple of Anna,[79] was painted; a picture in which, one of the greatest difficulties in the art, the face, though hidden, may be said to be seen rather than left to the imagination. He also painted a figure of a naked[80] Hero,[81] a picture in which he has challenged Nature herself.

There exists too, or did exist, a Horse that was painted by him for a pictorial contest; as to the merits of which, Apelles appealed from the judgment of his fellow-men to that of the dumb quadrupeds. For, finding that by their intrigues his rivals were likely to get the better of him, he had some horses brought, and the picture of each artist successively shown to them. Accordingly, it was only at the sight of the horse painted by Apelles that they began to neigh; a thing that has always been the case since, whenever this test of his artistic skill has been employed. He also painted a Neoptolemus[82] on horse-back, fighting with the Persians; an Archelaüs,[83] with his Wife and Daughter; and an Antigonus on foot, with a

Boar, or else, which is the most probable, a King of the Leleges in Samos, with whom, according to the Scholiast on Apollonius Rhodius, originated the saying, "There is many a slip between the cup and the lip;" in reference to his death, by a wild boar, when he was about to put a cup of wine to his mouth.

[78] Shown in his forbearing to appropriate them to his own use.

[79] Anna Perenna, probably, a Roman divinity of obscure origin, the legends about whom are related in the Fasti of Ovid, B. iii. l. 523. *et seq.* See also Macrobius, Sat. I. 12. Her sacred grove was near the Tiber, but of her temple nothing whatever is known. "Antoniæ" is another reading, but no such divinity is mentioned by any other author.

[80] Sillig (Dict. Anc. Art.) is of opinion that the reading is corrupt here, and that the meaning is, that Apelles "painted a Hero and Leander."

[81] Or Demigod.

[82] One of the followers of Alexander, ultimately slain by Eumenes in Armenia.

[83] King of Macedonia.

cuirass on, and his horse led by his side. Connoisseurs in the art give the preference, before all other works of his, to his paintings of King Archeläus on horseback, and of Diana in the midst of a throng of Virgins performing a sacrifice; a work in which he would appear to have surpassed the lines[84] of Homer descriptive of the same subject. He also portrayed some things, which in reality do not admit of being portrayed—thunder, lightning, and thunderbolts, in pictures which are known by the respective names of Bronte, Astrape, and Ceraunobolia.

His inventions, too, in the art of painting, have been highly serviceable to others; but one thing there was in which no one could imitate him. When his works were finished, he used to cover them with a black varnish, of such remarkable thinness, that while by the reflection it gave more vivacity to the colours, and preserved them from the contact of dust and dirt, its existence could only be detected by a person when close enough to touch it.[85] In addition to this, there was also this other great advantage attending it: the brightness of the colours was softened thereby, and harmonized to the sight, looking as though they had been viewed from a distance, and through a medium of specular-stone;[86] the contrivance, by some indescribable means, giving a sombreness to colours which would otherwise have been too florid.

One of the contemporaries of Apelles was Aristides[87] of Thebes; the first of all the painters to give full expression to the mind[88] and passions of man, known to the Greeks as ἤθη, as well as to the mental perturbations which we experience: he was somewhat harsh, however, in his colours. There is a picture by him of a Captured City, in which is represented an infant crawling toward the breast of its wounded mother, who,

[84] Odyss. B. vi. l. 102, *et seq.*

[85] Sir Joshua Reynolds discovers in the account here given "an artist-like description of the effect of glazing, or scumbling, such as was practised by Titian and the rest of the Venetian painters."—*Notes to Du Fresnoy.*

[86] "Lapis specularis." See B. xxxvi. c. 45.

[87] He was son of Aristodemus, and brother and pupil of Nicomachus, in addition to Euxenidas, already mentioned in this Chapter. He, Pausanias, and Nicophanes, excelled, as we learn from Athenæus, B. xiii., in the portraits of courtesans; hence their name, πορνόγραφοι.

[88] It has been well remarked by Wornum, in the article so often quoted, that "expression of the feelings and passions cannot be denied to Polygnotus, Apollodorus, Parrhasius, Timanthes, and many others."

though at the point of death, has all the appearance of being aware of it, and of being in dread lest the child should suck blood in place of milk from her exhausted breast: this picture Alexander the Great ordered to be transferred to Pella, his native place. Aristides also painted a Battle with the Persians, a picture which contained one hundred figures, for each of which he was paid at the rate of ten minæ by Mnason, the tyrant of Elatea.[89] He also painted Chariots with four horses in full career; a Suppliant, which almost speaks, Huntsmen with game; Leontion, the mistress of Epicurus; the Anapauomene,[90] a damsel pining to death from love for her brother; a Father Liber[91] also, and an Artamene, two fine pictures now to be seen in the Temple of Ceres[92] at Rome; a Tragedian and a Child, in the Temple of Apollo,[93] a picture which has lost its beauty, owing to the unskilfulness of the painter to whom M. Junius, the prætor, entrusted the cleaning of it, about the period of the Apollinarian Games.[94] There was also to be seen, in the Temple of Faith, in the Capitol, a picture of his, representing an Aged Man giving instructions to a Child on the lyre. He executed also a painting of an Invalid, upon which endless encomiums have been lavished. Indeed, so great was the excellence of this artist, that King Attalus, it is said, purchased one picture of his at the price of one hundred talents.

At the same period[95] flourished Protogenes, as already stated. He was a native of Caunus,[96] a place held in subjection by the Rhodians. Great poverty in his early days, and extreme application to his art, were the causes of his comparative unproductiveness. It is not known with certainty from whom he received his instruction in the art: indeed some say that he was only a ship-decorator down to his fiftieth year; a proof of

[89] See B. iv. c. 12.

[90] Meaning, "Her who has ceased" to live. The reference is to Byblis, who died of love for her brother Caunus. See Ovid's Metam. B. ix. l. 455, *et seq.*

[91] Or Bacchus. Already mentioned in Chapter 8 of this Book, in reference to the Roman general Mummius.

[92] In the Eleventh Region of the City.

[93] In the Tenth Region of the City. [94] Celebrated on the 3rd of July.

[95] In reference to the age of Apelles, whom he is supposed to have survived.

[96] In Caria, near to Lycia. Suidas says that he was born at Xanthus in Lycia.

which, it is asserted, is the fact, that in decorating the Propylæum[97] of the Temple of Minerva, situate in one of the most celebrated spots in Athens, where he has painted the fine picture[98] of Paralus and Hammonias, known by some as the Nausicaa, he has added in the side pieces of the picture, by painters called "parerga," several small ships of war;[99] wishing thereby to show in what department that skill had first manifested itself which had thus reached the citadel of Athens, the scene of his glory. Of all his compositions, however, the palm has been awarded to his Ialysus,[1] now at Rome, consecrated in the Temple of Peace there. So long as he was at work upon it, he lived, it is said, upon nothing but soaked lupines; by which means he at once appeased both hunger and thirst, and avoided all risk of blunting his perception by too delicate a diet. In order to protect this picture against the effects of ill-usage and old age, he painted it over four times,[2] so that when an upper coat might fail, there would be an under one to succeed it. There is in this picture the figure of a dog, which was completed in a very remarkable manner, inasmuch as accident had an equal share with design in the execution of it. The painter was of opinion that he had not given the proper expression to the foam at the mouth of the animal, panting for breath, as it was represented; while, with all other parts of the picture, a thing extremely difficult with him, he was perfectly satisfied. The thing that displeased him was, the evident traces of art in the execution of it, touches which did not admit of any diminution, and yet had all the appearance of being too laboured, the effect produced being far removed from his conception of the reality: the foam, in fact,

[97] Or Vestibule.

[98] Supposed by Sillig to have been an allegorical painting representing two of the sacred ships of the Athenians; but to have been mistaken in later times for a picture of Ulysses and Nausicaa, a subject taken from the Odyssey, B. vi. l. 16, *et seq.* As to Paralus, said to have been the first builder of long ships, or ships of war, see B. vii. c. 57.

[99] Or "long ships."

[1] Son of Cercaphus and Cydippe or Lysippe, and grandson of Apollo. He is said to have been the founder of the town of Ialysus, mentioned in B. v. c. 36.

[2] "These four times most probably were, the dead colouring, a first and a second painting, and lastly, scumbling with glazing."—Wornum, Smith's Dict. Antiq. Art. *Painting*.

bore the marks of being painted, and not of being the natural secretion of the animal's mouth. Vexed and tormented by this dilemma, it being his wish to depict truth itself, and not something that only bore a semblance of truth, he effaced it again and again, changed his pencil for another, and yet by no possibility could satisfy himself. At last, quite out of temper with an art, which, in spite of him, would still obtrude itself, he dashed his sponge against the vexatious spot; when behold! the sponge replaced the colours that it had just removed, exactly in accordance with his utmost wishes, and thus did chance represent Nature in a painting.

Following his example, Nealces,[3] it is said, succeeded in representing the foam at a horse's mouth; for on one occasion, when engaged in painting a man holding in a pair of horses and soothing them with his voice,[4] he also dashed his sponge against the picture, with the view of producing a like effect.

It was on account of this Ialysus, which he was apprehensive of destroying, that King Demetrius[5] forbore to set fire to the only side of the city of Rhodes by which it was capable of being taken; and thus, in his anxiety to spare a picture, did he lose his only opportunity of gaining a victory. The dwelling of Protogenes at this period was situate in a little garden in the suburbs, or in other words, in the midst of the camp of Demetrius. The combats that were taking place made no difference whatever to the artist, and in no way interrupted his proceeding with the works which he had commenced; until at last he was summoned before the king, who enquired how he could have the assurance thus to remain without the walls. "Because I know," was his answer, "that you are waging war with the Rhodians, and not with the arts." Upon this, the king, delighted at having the opportunity of protecting the hand which he had thus spared, ordered a guard to be placed at his disposal for the especial purpose of his protection. In order, too, that he might not distract the artist's attention by sending for him too often, he would often go, an enemy albeit, to pay him a visit, and, abandoning his aspirations for victory, in the midst of arms and the battering down of walls, would attentively examine the compositions of the

[3] See Chapter 40 in this Book.

[4] "Poppyzonta." "Smacking with his lips." Somewhat similar to the s—s—s—s of our grooms and ostlers.

[5] Poliorcetes.

painter. Even to this day, the story is still attached to the picture which he was then engaged upon, to the effect, that Protogenes painted it beneath the sword. It is his Satyr, known as the "Anapauomenos;"[6] in whose hand, to mark the sense of security that he felt, the painter has placed a pair of pipes.

Protogenes executed also, a Cydippe; a Tlepolemus; a portrait of Philiscus, the tragic poet, in an attitude of meditation; an Athlete; a portrait of King Antigonus, and one of the mother of Aristotle.[7] It was this philosopher too, who advised him to paint the exploits of Alexander the Great, as being certain to be held in everlasting remembrance. The impulse, however, of his natural disposition, combined with a certain artistic caprice, led him in preference to adopt the various subjects which have just been mentioned. His last works were representations of Alexander and the god Pan. He also executed some figures in bronze, as already[8] stated.

At the same period also, lived Asclepiodorus,[9] who was greatly admired by Apelles for his proportions. The tyrant Mnason[10] paid him, for his picture of the Twelve Gods, at the rate of thirty minæ for each divinity. This same Mnason also paid Theomnestus twenty minæ for each of his Heroes.

In addition to these, it is only proper to mention Nicomachus,[11] the son and disciple of Aristiæus. He painted a Rape of Proserpina, a picture that was formerly in the Temple of Minerva in the Capitol, above the shrine of Juventas.[12] Another picture of his was to be seen also in the Capitol, placed there by the Roman general Plancus,[13] a Victory soaring aloft in a chariot: he was the first painter who represented Ulysses wearing the pileus.[14] He painted also an Apollo and Diana; the Mother[15] of the Gods seated on a Lion; the fine picture of the Bacchantes, with Satyrs moving stealthily towards

[6] "In repose."
[7] Phæstis, or Phæstias by name.
[8] In B. xxxiv. c. 19.
[9] A native of Athens, ranked by Plutarch with Euphranor and Nicias.
[10] Tyrant of Elatea, mentioned already in this Chapter. See Note 89.
[11] Supposed by Sillig to have been a native of Thebes.
[12] Or "Youth;" in the Eighth Region of the City.
[13] See B. xiii. c. 5.
[14] A round, closely-fitting skull cap, made of felt. St. Jerome, Epist. 120, speaks of Ulysses as being thus represented in paintings. Statues of him with the "pileus" are still to be seen.
[15] See B. ii. c. 6.

them; and a Scylla, now at Rome in the Temple of Peace. No painter ever worked with greater rapidity than Nicomachus; indeed it is said, that on one occasion having entered into an engagement with Aristratus,[16] the tyrant of Sicyon, to paint within a given time the monument which he was raising to the memory of the poet Telestis,[17] the artist only arrived a few days before the expiration of the term; upon which, the tyrant was so angry that he threatened to punish him: however, in the few days that were left, Nicomachus, to the admiration of all, completed the work, with equal promptitude and success. Among his pupils, were his brother Ariston, his son Aristides, and Philoxenus of Eretria, who painted for King Cassander a picture representing one of the battles between Alexander and Darius, a work which may bear comparison with any. He also painted a picture in grotesque, representing Three Sileni at their revels. Imitating the celerity of execution displayed by his master, he introduced a more sketchy style of painting, executed in a comparatively off-hand manner.[18]

To these artists Nicophanes[19] has also been added, an elegant and finished painter, to whom for gracefulness few can be compared, but for a severe and tragic style far inferior to Zeuxis or Apelles. Perseus also belongs to this period, a pupil of Apelles, who dedicated to him his work on painting. Aristides of Thebes had for pupils his sons Niceros and Ariston. By the latter of these artists, there is a Satyr crowned with a chaplet and holding a goblet: two of his pupils were Antorides and Euphranor, of the latter of whom we shall have to make mention again.[20]

### CHAP. 37.—VARIOUS OTHER KINDS OF PAINTING.

We must now, however, make some mention of those artists who acquired fame by the pencil in an inferior style of painting. Among these was Piræicus, inferior to few of the painters in skill. I am not sure that he did not do injustice to

[16] A contemporary of Philip of Macedon.

[17] A dithyrambic poet, born at Selinus. He flourished B.C. 398. Only a few lines of his works remain.

[18] "Breviores etiamnum quasdam picturæ compendiarias invenit." Delafosse is of opinion that paintings in grotesque are probably meant.

[19] His country is uncertain, but he probably lived about the time of Apelles.

[20] In Chapter 40 of this Book.

himself by the choice of his subjects,[21] seeing that, although he adopted an humble walk, he still attained in that walk the highest reputation. His subjects were barbers' shops, cobblers' stalls, jackasses, eatables, and the like, and to these he was indebted for his epithet of "Rhyparographos."[22] His paintings, however, are exquisitely pleasing, and have sold at higher prices than the very largest works of many masters.

On the other hand again, as Varro tells us, a single picture by Serapio covered the whole space of the balustrades,[23] beneath the Old Shops,[24] where it was exhibited. This artist was very successful in painting stage-scenery, but was unable to depict the human form. Dionysius,[25] on the contrary, painted nothing but men, and hence it was that he had the surname of "Anthropographos."[26] Callicles[27] also painted some small pictures, and Calates executed some small works in the comic style. Both of these styles were adopted by Antiphilus;[28] who painted a very fine Hesione, and a Philip and Alexander with Minerva, now in the School of the Porticos[29] of Octavia. In the Portico of Philippus,[30] also, there is a Father Liber[31] by him; an Alexander when a child; and an Hippolytus alarmed at the Bull, which is rushing upon him:[32] and in the Portico of Pompeius[33] we have his Cadmus and Europa. On the other hand, again, he painted a

[21] He belonged, as Wornum remarks, to the class of genre-painters. or *peintres du genre bas*, as the French term them. His age and country are unknown.

[22] "Painter of low subjects." This term is equivalent in meaning, probably, to our expression—"The Dutch style."

[23] "Mæniana." Balustrades or balconies, said to have been so called from one Mænius, who built them.

[24] See Chapter 8 of this Book. They are mentioned also in the "Curculio" of Plautus, A. iv. s. i. l. 19. Nothing further is known of Serapio.

[25] His country is unknown, but he is supposed to have lived in the first century B.C. See also Chapter 40 of this Book.

[26] "Painter of men."

[27] Mentioned also by Varro. He probably lived in the time of Alexander the Great.

[28] A native of Egypt, compared by many to the most eminent artists. He is spoken of in high terms by Quintilian, B. xii. c. 10. See also Chapter 40 of this Book.

[29] Built by Augustus in the Ninth Region of the City, in honour of his sister Octavia.

[30] See Chapter 36.

[31] Bacchus.

[32] And so caused his death by falling from his chariot. See the "Hippolytus" of Euripides.

[33] Near the Theatre of Pompey, in the Ninth Region of the City.

figure in a ridiculous costume, known jocosely as the Gryllus; and hence it is that pictures of this class[34] are generally known as "Grylli." Antiphilus was a native of Egypt, and received instruction in the art from Ctesidemus.[35]

It would not be right to pass in silence the painter of the Temple at Ardea,[36] the more particularly as he was honoured with the citizenship at that place, and with the following inscription in verse upon one of the paintings which he executed there:

> "These paintings, worthy of this worthy place,
> Temple of Juno, queen, and wife of Jove,
> Plautius Marcus,[37] from Alalia, made.
> May Ardea now and ever praise him for his skill."

These lines are written in ancient Latin characters.

Ludius too, who lived in the time of the late Emperor Augustus, must not be allowed to pass without some notice; for he was the first to introduce the fashion of covering the walls of our houses with most pleasing landscapes, representing villas, porticos, ornamental gardening, woods, groves, hills, fishponds, canals,[38] rivers, sea-shores, and anything else one could desire; varied with figures of persons walking, sailing, or proceeding to their villas, on asses or in carriages. Then, too, there are others to be seen fishing, fowling, or gathering in the vintage. In some of his decorations there are fine villas to be seen, and roads to them across the marshes, with women making[39] bargains to be carried across on men's shoulders, who move along slipping at every step and tottering beneath their load; with numberless other subjects of a similar nature, redolent of mirth and of the most amusing ingenuity. It was this artist, too, who first decorated our uncovered[40]

[34] "Caricatures." Sillig thinks it not unlikely that Gryllus was painted with a pig's face, that animal being signified by the Greek word γρυλλὸς.

[35] See Chapter 40 of this Book. [36] See Chapter 6 of this Book.

[37] In the original, as given by Sillig, "Plautiu, Marcus Cleœtas." That commentator supposes him to have been a Greek by birth, and adopted into the Plautian family, on being made a citizen of Rome.

[38] "Euripi." See B. ii. c. 100, B. viii. c. 40, and B. ix. cc. 22, 80. The landscape paintings on the interior walls of houses at Herculaneum and Pompeii may be taken as specimens of this artist's style.

[39] "Succollatis sponsione mulieribus." This passage appears to be a mass of confusion, in spite of Sillig's attempts to amend and explain it. The meaning can only be guessed at, not given with any degree of certainty: of Ludius himself, no further particulars are known.

[40] The "hypæthra" or promenades.

edifices with representations of maritime cities, a subject which produces a most pleasing effect, and at a very trifling expense.

But as for fame, that has been reserved solely for the artists who have painted pictures; a thing that gives us all the more reason to venerate the prudence displayed by the men of ancient times. For with them, it was not the practice to decorate the walls of houses, for the gratification of the owners only; nor did they lavish all their resources upon a dwelling which must of necessity always remain a fixture in one spot, and admits of no removal in case of conflagration. Protogenes was content with a cottage in his little garden; Apelles had no paintings on the plaster of his walls; it not being the fashion in their day to colour the party-walls of houses from top to bottom. With all those artists, art was ever watchful for the benefit of whole cities only, and in those times a painter was regarded as the common property of all.

Shortly before the time of the late Emperor Augustus, Arellius was in high esteem at Rome; and with fair reason, had he not profaned the art by a disgraceful piece of profanity; for, being always in love with some woman or other, it was his practice, in painting goddesses, to give them the features of his mistresses; hence it is, that there were always some figures of prostitutes to be seen in his pictures. More recently, lived Amulius,[41] a grave and serious personage, but a painter in the florid style. By this artist there was a Minerva, which had the appearance of always looking at the spectators, from whatever point it was viewed. He only painted a few hours each day, and then with the greatest gravity, for he always kept the toga on, even when in the midst of his implements. The Golden Palace[42] of Nero was the prison-house of this artist's productions, and hence it is that there are so few of them to be be seen elsewhere.

Next in repute to him were Cornelius Pinus and Attius Priscus, who painted the Temple of Honour and that of Virtue,[43] on their restoration by the Emperor Vespasianus Augustus. Priscus approaches more closely to the ancient masters.

[41] Most editions give "Famulus." Nothing further is known of him.
[42] See B. xxxvi. c. 24.
[43] Both in the First Region of the City, near the Capenian Gate.

CHAP. 38. (11.)—AN EFFECTUAL WAY OF PUTTING A STOP TO THE SINGING OF BIRDS.

I must not omit here, in reference to painting, a celebrated story that is told about Lepidus. During the Triumvirate, when he was entertained by the magistrates of a certain place, he had lodgings given him in a house that was wholly surrounded with trees. The next day, he complained to them in a threatening tone, that he had been unable to sleep for the singing of the birds there. Accordingly, they had a dragon painted, on pieces of parchment of the greatest length that could possibly be obtained, and surrounded the grove with it; a thing that so terrified the birds, it is said, that they became silent at once; and hence it was that it first became known how this object could be attained.

CHAP. 39.—ARTISTS WHO HAVE PAINTED IN ENCAUSTICS OR WAX, WITH EITHER THE CESTRUM OR THE PENCIL.

It is not agreed who was the inventor of the art of painting in wax and in encaustic.[44] Some think that it was a discovery of the painter Aristides,[45] and that it was afterwards brought to perfection by Praxiteles: but there are encaustic paintings in existence, of a somewhat prior date to them, those by Polygnotus,[46] for example, and by Nicanor and Arcesilaüs,[47] natives of Paros. Elasippus too, has inscribed upon a picture of his at Ægina, the word ἐνέκαεν;[48] a thing that he certainly could not have done, if the art of encaustic painting had not been then invented.

CHAP. 40.—THE FIRST INVENTORS OF VARIOUS KINDS OF PAINTING. THE GREATEST DIFFICULTIES IN THE ART OF PAINTING. THE SEVERAL VARIETIES OF PAINTING. THE FIRST

[44] See Chapter 41 of this Book, where the difficulties attending this description will be considered. [45] See Chapter 36 of this Book.

[46] See Chapter 35 of this Book.

[47] Possibly the artist of that name mentioned by Athenæus, B. x., as a tutor of Apelles. If so, he must have flourished about the ninety-seventh Olympiad.

[48] Elasippus "inburned" this picture, *i. e.* executed it in encaustic. From the Attic form of this word, it has been concluded that he was an Athenian. The spelling of his name is very doubtful.

ARTIST THAT PAINTED CEILINGS. WHEN ARCHED ROOFS WERE FIRST PAINTED. THE MARVELLOUS PRICE OF SOME PICTURES.

It is said, too, that Pamphilus,[49] the instructor of Apelles, not only painted in encaustic, but also instructed Pausias[50] of Sicyon in the art, the first who rendered himself distinguished in this branch. Pausias was the son of Bryetes, by whom he was originally instructed in the art of painting. He retouched also with the pencil[51] some walls at Thespiæ, then undergoing repair, which had formerly been painted by Polygnotus. Upon instituting a comparison, however, it was considered that he was greatly inferior, this kind of painting not being in his line. It was he, too, who first thought of painting ceilings; nor had it been the practice before his day to use this kind of decoration for arched roofs. He painted many small pictures also, miniatures of children more particularly; a thing which, according to the interpretation put upon it by his rivals, was owing to the peculiarly slow process of encaustic painting. The consequence was, that being determined to give a memorable proof of his celerity of execution, he completed a picture in the space of a single day, which was thence called the "Hemeresios,"[52] representing the portrait of a child.

In his youth, he was enamoured of Glycera,[53] his fellow-townswoman, the first inventor of chaplets; and in his rivalry of the skill shown by her, he achieved so much success in the encaustic art, as to reproduce the almost numberless tints displayed by flowers. At a later period, he painted her, seated, with a chaplet on, and thus produced one of the very finest of his pictures; known as the "Stephaneplocos"[54] by some, and as the "Stephanopolis"[55] by others; from the circumstance that Glycera had supported herself in her poverty by selling these chaplets. A copy of this picture, usually known as an "apographon,"[56] was purchased by L. Lucullus at Athens, during the festival of the Dionysia, at the price of two talents.

Pausias also painted some large pictures, a Sacrifice of Oxen, for instance, which used to be seen in the Portico of Pom-

[49] See Chapter 36 of this Book.

[50] Two paintings of his at Epidaurus are mentioned by Pausanias, B. ii. c. 27.

[51] And *not* in encaustic; though, as we shall see in Chapter 41, the brush was sometimes used in this branch.

[52] The "One day" picture.

[53] See B. xxi. c. 3.

[54] The "Chaplet-wearer." See B. xxi. c. 3.

[55] The "Chaplet-seller."

[56] A "correct" copy.

peius. In this painting he invented several improvements, which many artists have since imitated, but none with the same success. Although in the picture it was particularly his desire to give an impression of the length of the ox, he painted it with a front view and not sideways, and still has caused the large dimensions of the animal to be fully understood. And then too, whereas all other painters colour in white such parts as they wish to have the appearance of being prominent, and in black such portions as are intended to remain in the back-ground, he has painted the whole of the ox of a black colour, and has shown the dimensions of the body which throws the shadow by the medium of the shadow itself; thus evincing a wonderful degree of skill in showing relief upon a coat painted with a single colour, and conveying an impression of uniform solidity upon a broken ground.[57] It was at Sicyon also that Pausias passed his life, a city which for a long time continued to be the native place of painting. Ultimately, all the paintings belonging to that place were sold by public auction for the discharge of the debts owing by the city, and were transferred to Rome in the ædileship of Scaurus.[58]

Next to him, in the hundred and fourth Olympiad, Euphranor,[59] the Isthmian, distinguished himself far beyond all others, an artist who has been already mentioned in our account of the statuaries. He executed some colossal figures also, and some statues in marble, and he chased some drinking-vessels; being studious and laborious in the highest degree, excellent in every branch, and at all times equal to himself. This artist seems to have been the first to represent heroes with becoming dignity, and to have paid particular attention to symmetry. Still, however, in the generality of instances, he has made the body slight in proportion to the head and limbs. He composed some treatises also upon symmetry and colours. His works are, an Equestrian Combat;[60] the Twelve Gods; and a

[57] "In confracto." Meaning probably the group of the surrounding spectators, on which the shadow of the animal's body was thrown. "It is evident that this artist excelled in his effect of light and shade, enhanced by contrasts, and strong foreshortenings."—Wornum, Smith's Dict. Antiq. Art. *Painting*.

[58] A.U.C. 678. See B. xxxvi. c. 24. [59] Mentioned also in B. xxxiv. c. 19.

[60] Praised by Pausanias, B. i. It was in this combat, he says, that Gryllus, the son of Xenophon, and Epaminondas the Theban, first distinguished themselves.

Theseus; with reference to which he remarked that the Theseus of Parrhasius had been fed upon roses, but his own upon beef.[61] There are also at Ephesus some famous pictures by him; an Ulysses, in his feigned madness, yoking together an ox and a horse; Men, in an attitude of meditation, wearing the pallium;[62] and a Warrior, sheathing his sword.

At the same time, also, flourished Cydias;[63] for whose picture of the Argonautæ the orator Hortensius paid one hundred and forty-four thousand sesterces, and had a shrine constructed expressly for its reception on his estate at Tusculum.[64] There was also Antidotus, a pupil of Euphranor, by whom there is, at Athens, a Combatant armed with a shield; a Wrestler, also; and a Trumpeter, a work which has been considered a most exquisite production.

Antidotus, as a painter, was more careful in his works than prolific, and his colouring was of a severe style. His principal glory was his having been the instructor of Nicias[65] of Athens; who was a most careful painter of female portraits, and a strict observer of light and shade,[66] making it his especial care that the figures in his pictures should appear in the boldest relief. His works are, a Nemea, which was brought from Asia to Rome by Silanus, and was placed in the Curia, as already stated;[67] a Father Liber,[68] in the Temple[69] of Concord; a Hyacinthus,[70] which the Emperor Augustus was so delighted with, that he took it away with him after the capture of Alexandria; for which reason also it was consecrated in the Temple[71] of Augustus by the Emperor Tiberius; and a Danaë. At Ephesus, there is a tomb by him of a megabyzus,[72] or priest of the Ephesian Diana; and at

[61] "Carne." Beef, according to Plutarch, was the flesh mentioned.

[62] The dress of the Greek philosophers, more particularly.

[63] Born in the island of Cythnos, one of the Cyclades. He is supposed to be the artist mentioned by Theophrastus, De Lapid. c. 95.

[64] It is supposed by Sillig, from Dio Cassius, B. liii. c. 27, that this painting was transferred by M. Vipsanius Agrippa, to the Portico of Neptune.

[65] See Chapter 20 of this Book, where he is mentioned as having been the first artist who used "usta" or burnt ceruse. From Pausanias we learn that his remains were interred at Athens, in the road leading to the Academia.

[66] Chiarosouro.

[67] In Chapter 10 of this Book.

[68] Bacchus.

[69] In the Eighth Region of the City.

[70] Spoken of by Pausanias, B. iii. c. 19.

[71] In the Forum at Rome.

[72] See Chapter 36 of this Book, Note 73, p. 261.

Athens a representation of the Necyomantea[73] of Homer; which last he declined to sell to King Attalus for sixty talents, and in preference, so rich was he, made a present of it to his own native place. He also executed some large pictures, among which there are a Calypso, an Io, an Andromeda, a very fine Alexander, in the Porticos[74] of Pompeius, and a Calypso, seated. To this painter also there are some pictures of cattle attributed, and in his dogs he has been remarkably successful. It was this Nicias, with reference to whom, Praxiteles, when asked with which of all his works in marble he was the best pleased, made answer, "Those to which Nicias has set his hand," so highly did he esteem the colouring of that artist. It has not been satisfactorily ascertained whether it is this artist or another of the same name that some writers have placed in the hundred and twelfth Olympiad.

With Nicias has been compared, and indeed sometimes preferred to him, Athenion of Maronea,[75] a pupil of Glaucion of Corinth. In his colouring he is more sombre than Nicias, and yet, with all his sombreness, more pleasing; so much so indeed, that in his paintings shines forth the extensive knowledge which he possessed of the art. He painted, in the Temple at Eleusis, a Phylarchus;[76] and at Athens, a family group, which has been known as the "Syngenicon;"[77] an Achilles also, concealed in a female dress, and Ulysses detecting him; a group of six whole-length figures, in one picture; and, a work which has contributed to his fame more than any other, a Groom leading a Horse. Indeed, if he had not died young, there would have been no one comparable to Athenion in painting.

Heraclides, too, of Macedon, had some repute as an artist. At first he was a painter of ships, but afterwards, on the capture of King Perseus, he removed to Athens; where at the same period was also Metrodorus,[78] who was both a painter and a philosopher, and of considerable celebrity in both

[73] "Place of the prophecies of the dead;" in reference to the description of the Infernal Regions in the Fourth Book of the Odyssey.

[74] See Chapter 37 of this Book. [75] See B. iv. c. 18.

[76] Supposed by Hardouin to be the writer mentioned at the end of B. vii. and B. x.: or perhaps, "a chief" of an Athenian tribe.

[77] A "group of kindred." [78] A disciple of Carneades. See the list of writers at the end of this Book.

branches. Hence it was, that when L. Paulus Æmilius, after the conquest of Perseus,[79] requested the Athenians to send him the most esteemed philosopher for the education of his children, and a painter to represent his triumph, they made choice of Metrodorus, declaring that he was eminently suited for either purpose; a thing which Paulus admitted to be the case.

Timomachus of Byzantium, in the time of the Dictator Cæsar, painted an Ajax[80] and a Medea, which were placed by Cæsar in the Temple of Venus Genetrix, having been purchased at the price of eighty talents; the value of the Attic talent being, according to M. Varro, equivalent to six thousand denarii. An Orestes, also by Timomachus, an Iphigenia in Tauris, and a Lecythion, a teacher of gymnastics, are equally praised; a Noble Family also; and Two Men clothed in the pallium,[81] and about to enter into conversation, the one standing, the other in a sitting posture. It is in his picture, however of the Gorgon,[82] that the art appears to have favoured him most highly.

Aristolaüs, the son and pupil of Pausias, was one of the painters in a more severe style: there are by him an Epaminondas, a Pericles, a Medea, a Theseus, an emblematical picture of the Athenian People, and a Sacrifice of Oxen. Some persons, too, are pleased with the careful style of Nicophanes,[83] who was also a pupil of Pausias; a carefulness, however, which only artists can appreciate, as in other respects he was harsh in his colours, and too lavish of sil;[84] as in his picture, for example, of Æsculapius with his daughters, Hygia,[84*] Ægle, and Panacea, his Jason, and his Sluggard, known as the "Ocnos,"[85] a man twisting a rope at one end as an ass gnaws it at the other. As to Socrates,[85*] his pictures are, with good reason, universally esteemed.

Having now mentioned the principal painters in either

[79] B.C. 168.

[80] Represented in a sitting posture, as mentioned by Ovid, Trist. II. 525, and by Philostratus, Vit. Apol. B. II. c. 10. The Medea is described in an Epigram in B. iv. of the Greek Anthology, imitated by Ausonius, Epigr. 22.

[81] See Note 65 above.

[82] Medusa, slain by Perseus.

[83] In the former editions, "Mecophanes."

[84] Or ochre. See B. xxxiii. c. 56.

[84*] Health, Brightness, and All-heal.

[85] Greek for "sluggard."

[85*] Probably, from the context, a pupil, also, of Pausias.

branch,[86] I must not pass in silence those who occupy the next rank. Aristoclides decorated the Temple of Apollo at Delphi. Antiphilus[87] is highly praised for his picture of a Boy blowing a Fire, which illumines an apartment handsomely furnished, and throws a light[88] upon the features of the youth; a Spinning-room, with women plying their respective tasks; and a King Ptolemæus hunting. But his most famous picture is his Satyr, clad in a panther's skin, and known as the "Aposcopeuon."[89] Aristophon[90] has painted an Ancæus[91] wounded by the Boar, with Astypale, the sharer of his grief; and a picture with numerous figures, representing Priam, Helena, Credulity, Ulysses, Deiphobus, and Guile.[92] Androbius has painted a Scyllus[93] cutting away the anchors of the Persian fleet: and Artemon a Danaë, with Robbers in admiration; a Queen Stratonice;[94] and a Hercules and Deianira. But the finest of all this artist's works are those now in the buildings of Octavia; a Hercules ascending to heaven, with the sanction of the gods, from his funeral pile upon Mount Œta in Doris; and the story of Laomedon and his bargain[95] with Hercules and Neptune. Alcimachus has painted Dioxippus,[96] who was victorious in the pancratium at Olympia, without raising the dust; a victory known to the Greeks as being gained "aconiti."[97] Cœnus painted pedigrees.[98]

Ctesilochus, a pupil[99] of Apelles, was famous for a burlesque

[86] In pencil painting, and in encaustic.

[87] Probably the same painter that is mentioned in Chapter 37.

[88] An effect for which Schalken is famous. [89] "Shading his eyes."

[90] Son and pupil of Aglaopho, and brother of Polygnotus. He was probably a native of Thasos. [91] See Chapter 36, Note 77, page 261.

[92] "Dolus." An emblematical picture evidently, probably representing the events just prior to the capture of Troy.

[93] A famous diver, mentioned by Herodotus, B. viii. c. 8, Pausanias, B. x. c. 19, and Strabo, B. ix.

[94] Probably the wife of Seleucus, given by him to his son Antiochus. See B. vii. c. 37, Note 38.

[95] That they should rebuild the walls of Troy.

[96] His contest with Corragus the Macedonian, whom he defeated, is mentioned also by Ælian, Diodorus Siculus, Athenæus, and Quintus Curtius.

[97] Gained "without raising the dust," *i. e.* without any difficulty.

[98] This is perhaps the meaning of "stemmata;" "heraldic pictures," probably. See Juvenal, Sat. viii. l. 2.

[99] Suidas seems to mention him, under the name of "Ctesiochus," as the brother of Apelles.

picture of his representing Jupiter in labour with Bacchus,[1] with a mitra[2] on his head, and crying like a woman in the midst of the goddesses, who are acting as midwives. Cleon distinguished himself by his Cadmus; and Ctesidemus, by his Capture of Œchalia[3] and his Laodamia.

Ctesicles became notorious for the insult which he offered to Queen Stratonice;[4] for, upon failing to meet with an honourable reception from her, he painted her, romping with a fisherman, for whom, according to common report, she had conceived an ardent affection. After exhibiting this picture in the harbour at Ephesus, he at once set sail and escaped: the queen, however, would not allow of its removal, the likenesses of the two figures being so admirably expressed. Cratinus,[5] the comic writer, painted at Athens, in the Pompeion[6] there.

Of Eutychides, there is a Victory guiding a chariot drawn by two horses. Eudorus is famous for his dramatic scenery; he executed some statues in bronze also. By Hippys there is a Neptune and Victory. Habron painted a picture of Friendship and Concord, and several figures of divinities; Leontiscus, an Aratus with the trophies of victory,[7] and a Singing-girl; Leon, a portrait of Sappho; and Nearchus, a Venus attended by Cupids and Graces, and a Hercules, sorrowing and repentant at the sad results of his madness.[8] Nealces,[9] a remarkably ingenious and inventive artist, painted a Venus. On one occasion, when he had to represent a naval engagement between the Persians and Egyptians, wishing it to be understood that

[1] Who was said to have been born from the thigh of Jove.

[2] Or cap; see Chapter 35 of this Book.

[3] By Hercules, when he demanded Iole of her father Eurytus, king of Œchalia.

[4] See Note 94 above.

[5] Several Cratini were distinguished as Comic writers, but we do not read in any other author of any one of them being a painter. The reading is doubtful.

[6] A building at the entrance into Athens, whence the "pompæ," or solemn processions, set out.

[7] Hardouin thinks that this was the victory gained by Aratus of Sicyon over Aristippus, the Tyrant of Argos. If so, Leontiscus must have flourished about Olymp. 136.

[8] Caused by the anger of Juno. In this fit of insanity he slew his wife Megara and her children.

[9] See also Chapter 36. From Plutarch we learn that he was greatly in favour with Aratus of Sicyon.

it took place on the river Nilus, the waters of which are similar in appearance to those of the sea, he employed an emblem to disclose that which would not admit of expression by art; for he painted an ass drinking on the shore, and a crocodile lying in wait for him.[10]

Œnias has painted a Family Group; Philiscus, a Painter's Studio, with a boy blowing the fire; Phalerion, a Scylla; Simonides, an Agatharchus and a Mnemosyne; Simus, a youth reposing, a Fuller's Shop, a person celebrating the Quinquatria,[11] and a Nemesis of great merit. By Theorus[12] there is a Man Anointing himself; a picture of the Murder of Ægisthus and Clytæmnestra by Orestes; and a representation of the Trojan War, in a series of paintings, now at Rome, in the Porticos[13] of Philippus: a Cassandra[14] also, in the Temple of Concord; a Leontium, the mistress of Epicurus, in an attitude of meditation; and a King Demetrius.[15] Theon[16] has painted the Frenzy[17] of Orestes, and a Thamyras[18] playing on the lyre; Tauriscus, a Discobolus,[19] a Clytæmnestra, a Pan in miniature, a Polynices claiming[20] the sovereignty, and a Capaneus.[21]

In speaking of these artists, I must not omit to mention one memorable circumstance: Erigonus, who was colour-grinder to the painter Nealces, himself made such progress in the art as to leave a very celebrated pupil, Pasias, the brother of Ægineta, the modeller. It is also a very singular fact, and one well deserving of remark, that the last works of these artists, their unfinished paintings, in fact, are held in greater admiration than their completed works; the Iris of Aristides, for instance, the Tyndaridæ[22] of Nicomachus, the Medea of Timomachus,[23] and the Venus of Apelles,[24] already mentioned. For in such

[10] According to Brotero, a representation of the Ass and Crocodile was found in the pictorial embellishments at Herculaneum.

[11] See B. xvii. c. 36, B. xviii. c. 56, and B. xix. c. 24.

[12] "Theodorus" in most of the editions.

[13] See Chapter 36 of this Book, page 252.

[14] See the Æneid, B. II. c. 403, *et seq.* [15] Poliorcetes.

[16] A native of Samos, mentioned by Quintilian, B. xii. c. 10, as one of the painters between the time of Philip and that of the successors of Alexander. [17] After the murder of his mother. [18] See B. vii. c. 57.

[20] Against his brother Eteocles. [19] Or player with the discus.

[21] Who assisted Polynices in his siege of Thebes.

[22] Helen, Castor, and Pollux. [23] See B. vii. c. 37.

[24] Mentioned in Chapter 36, as having been commenced for the people of Cos, but never finished.

works as these, we not only see the outline depicted, and the very thoughts of the artist expressed, but have the composition additionally commended to our notice by the regrets which we must necessarily feel on finding the hand that commenced it arrested by death.

There are still some other artists, who, though by no means without reputation, can only be noticed here in a summary manner: Aristocydes; Anaxander; Aristobulus of Syria; Arcesilas,[26] son of Tisicrates; Corœbos, a pupil of Nicomachus; Charmantides, a pupil of Euphranor; Dionysodorus of Colophon; Dicæogenes, a contemporary of King Demetrius;[27] Euthymides; Heraclides[28] of Macedon; Milo of Soli, a pupil of the statuary Pyromachus; Mnasitheus of Sicyon; Mnasitimus, the son and pupil of Aristonidas;[29] Nessus, son of Habron;[30] Polemon of Alexandria; Theodorus of Samos, and Stadieus, pupils of Nicosthenes; and Xeno of Sicyon, a pupil of Neocles.

There have been some female painters also. Timarete, the daughter of Micon,[31] painted a Diana at Ephesus, one of the very oldest panel-paintings known. Irene, daughter and pupil of the artist Cratinus,[32] painted a figure of a girl, now at Eleusis, a Calypso, an Aged Man, the juggler Theodorus, and Alcisthenes the dancer. Aristarete, daughter and pupil of Nearchus, painted an Æsculapius. Iaia of Cyzicus, who always remained single, painted at Rome, in the youth of M. Varro, both with the brush, and with the graver,[33] upon ivory, her subjects being female portraits mostly. At Naples, there is a large picture by her, the portrait of an Old Woman; as also a portrait of herself, taken by the aid of a mirror. There was no painter superior to her for expedition; while at the same time her artistic skill was such, that her works sold at much higher prices than those of the most celebrated portrait-painters of

[26] See B. xxxiv. cc. 19, 39. Sillig is of opinion that the picture mentioned by Pausanias, B. I. c. 1, in honour of Leosthenes, killed in the Lamian War, B.C. 323, was by this artist.

[27] Poliorcetes, who began to reign B.C. 306.

[28] Already mentioned in this Chapter, at greater length.

[29] See B. xxxiv. c. 40.

[30] See Chapter 36 of this Book, and the present Chapter. Of the greater part of these artists nothing further is known.

[31] See Chapter 35 of this Book.

[32] Previously mentioned in this Chapter.

[33] Or stylus—"cestrum."

her day, Sopolis namely, and Dionysius,[34] with whose pictures our galleries are filled. One Olympias painted also, but nothing is known relative to her, except that she had Autobulus for a pupil.

### CHAP. 41.—ENCAUSTIC PAINTING.

In ancient times there were but two methods of encaustic[35] painting, in wax and on ivory,[36] with the cestrum or pointed graver. When, however, this art came to be applied to the painting of ships of war, a third method was adopted, that of melting the wax colours and laying them on with a brush, while hot.[37] Painting of this nature,[38] applied to vessels, will never spoil from the action of the sun, winds, or salt water.

### CHAP. 42.—THE COLOURING OF TISSUES.

In Egypt, too, they employ a very remarkable process for the colouring of tissues. After pressing the material, which is white at first, they saturate it, not with colours, but with mordents that are calculated to absorb colour. This done, the tissues, still unchanged in appearance, are plunged into a cauldron of boiling dye, and are removed the next moment fully coloured. It is a singular fact, too, that although the dye in the pan is of one uniform colour, the material when taken out of it is of various colours, according to the nature of the mordents that have been respectively applied to it: these colours, too, will never wash out. Thus the dye-pan, which under ordinary circum-

[34] Probably the same painter as the one mentioned in Chapter 37 of this Book.

[35] See Chapter 39 of this Book. Pausias painted in wax with the cestrum.

[36] Wornum is of opinion that this must have been a species of drawing with a heated point, upon ivory, without the use of wax. Smith's Dict. Antiq. Art. *Painting.*

[37] This method, as Wornum remarks, though first employed on ships, was not necessarily confined to ship-painting; and it must have been a very different style of painting from the ship-colouring of Homer, since it was of a later date even than the preceding methods.

[38] Though he says nothing here of the use of the "cauterium," or process of *burning in*, its employment may certainly be inferred from what he has said in Chapter 39. Wornum is of opinion that the definition at the beginning of this Chapter, of *two* methods apparently, "*in* wax and *on* ivory," is in reality an explanation of *one* method only, and that the ancient modes of painting in encaustic were not only three, but several.

stances, no doubt, would have made but one colour of several, if coloured tissues had been put into it, is here made to yield several colours from a single dye. At the same moment that it dyes the tissues, it boils in the colour; and it is the fact, that material which has been thus submitted to the action of fire becomes stouter and more serviceable for wear, than it would have been if it had not been subjected to the process

### CHAP. 43. (12.)—THE INVENTORS OF THE ART OF MODELLING.

On painting we have now said enough, and more than enough; but it will be only proper to append some accounts of the plastic art. Butades, a potter of Sicyon, was the first who invented, at Corinth, the art of modelling portraits in the earth which he used in his trade. It was through his daughter that he made the discovery; who, being deeply in love with a young man about to depart on a long journey, traced the profile of his face, as thrown upon the wall by the light of the lamp. Upon seeing this, her father filled in the outline, by compressing clay upon the surface, and so made a face in relief, which he then hardened by fire along with other articles of pottery. This model, it is said, was preserved in the Nymphæum[39] at Corinth, until the destruction of that city by Mummius.[40] Others, again, assert that the first inventors of the plastic art were Rhœcus[41] and Theodorus,[42] at Samos, a considerable period before the expulsion of the Bacchiadæ from Corinth: and that Damaratus,[43] on taking to flight from that place and settling in Etruria, where he became father of Tarquinius, who was ultimately king of the Roman people, was accompanied thither by the modellers Euchir,[44] Diopus, and Eugrammus, by whose agency the art was first introduced into Italy.

[39] Or Temple of the Nymphs. The daughter of Butades is called "Core" by *Athenagoras*.

[40] See B. xxxiv. c. 3.

[41] Son of Philæus. He is mentioned by Pausanias, B. viii. c. 14, and by Herodotus, B. iii. c. 60, as the architect of a fine temple at Samos, and, with Smilis and Theodorus, of the Labyrinth at Lemnos.

[42] Mentioned also in B. xxxiv. c. 19. Pliny is in error here in using the word "plastice;" for it was the art of casting brass, and not that of making plaster casts, that these artists invented.

[43] See Chapter 5 of this Book. He is said by Dionysius of Halicarnassus, B. iii., to have been a member of the family of the Bacchiadæ.

[44] A different person, probably, from the one of the same name mentioned in B. vii. c. 56.

Butades first invented the method of colouring plastic compositions, by adding red earth to the material, or else modelling them in red chalk: he, too, was the first to make masks on the outer edges of gutter-tiles upon the roofs of buildings; in low relief, and known as "prostypa" at first, but afterwards in high relief, or "ectypa." It was in these designs,[45] too, that the ornaments on the pediments of temples originated; and from this invention modellers first had their name of "plastæ."

### CHAP. 44.—WHO WAS THE FIRST TO MOULD FIGURES IN IMITATION OF THE FEATURES OF LIVING PERSONS, OR OF STATUES.

The first person who expressed the human features by fitting a mould of plaster upon the face, and then improving it by pouring melted wax into the cast, was Lysistratus[46] of Sicyon, brother of Lysippus, already mentioned. It was he, in fact, who first made it his study to give a faithful likeness; for before his time, artists only thought how to make their portraits as handsome as possible. The same artist, too, was the first who thought of making models for his statues; a method which afterwards became so universally adopted, that there could be neither figure nor statue made without its model in clay. Hence it would appear, that the art of modelling in clay is more ancient than that of moulding in bronze.[47]

### CHAP. 45.—THE MOST FAMOUS MODELLERS.

The most celebrated modellers were Damophilus and Gorgasus, who were painters as well. These artists adorned with their works, in both kinds, the Temple of Ceres,[48] in the Circus Maximus at Rome; with an inscription in Greek, which stated that the decorations on the right-hand were the workmanship of Damophilus, and those on the left, of Gorgasus. Varro says that, before the construction of this temple, everything was Tuscan[49] in the temples; and that, when the temple was afterwards repaired, the painted coatings of the walls were

[45] Terra cotta figures.

[46] See B. XXXIV. c. 19. Tatian mentions a statue of Melanippe by Lysistratus.

[47] See B. XXXVI. c. 4.

[48] In the Eleventh Region of the City. This Temple of Ceres, Bacchus, and Proserpine, in the Circus Maximus, was vowed by A. Posthumius, the Dictator, A.U.C. 258, and dedicated by the consul Cassius, A.U.C. 261, or B.C. 493.

[49] See B. XXXIV. c. 16.

cut away in tablets and enclosed in frames, but that the figures on the pediments were dispersed. Chalcosthenes,[50] too,[51] executed at Athens some works in unbaked earth, on the spot which, from his manufactory, has since obtained the name of "Ceramicus."[52]

M. Varro states that he knew an artist at Rome, Possis by name, who executed fruit, grapes, and fish, with such exactness, that it was quite impossible, by only looking at them, to distinguish them from the reality. He speaks very highly also of Arcesilaüs,[53] who was on terms of intimacy with Lucius Lucullus,[54] and whose models in plaster used to sell at a higher rate, among artists themselves, than the works of others. He informs us, also, that it was by this modeller that the Venus Genetrix in the Forum of Cæsar was executed, it having been erected before completion, in the great haste that there was to consecrate it; that the same artist had made an agreement with Lucullus to execute a figure of Felicity, at the price of sixty thousand sesterces, the completion of which was prevented by their death; and that Octavius, a Roman of equestrian rank, being desirous of a model for a mixing-bowl,[55] Arcesilaüs made him one in plaster, at the price of one talent.

Varro praises Pasiteles[56] also, who used to say, that the plastic art was the mother of chasing, statuary, and sculpture, and who, excellent as he was in each of these branches, never executed any work without first modelling it. In addition to these particulars, he states that the art of modelling was anciently cultivated in Italy, Etruria in particular; and that Volcanius was summoned from Veii, and entrusted by Tarquinius Priscus with making the figure of Jupiter, which he intended to consecrate in the Capitol; that this Jupiter was made of clay, and that hence arose the custom of painting it with minium;[57] and that the four-horse chariot, so often[58]

[50] Sillig (Dict. Anc. Art.) is of opinion that this Chalcosthenes is not identical with the artist of that name mentioned in B. xxxiv. c. 19; the name "Ceramicus" probably being of far earlier origin than the formation of the statues of Comedians.

[51] "Et." The insertion of this word seems to militate against Sillig's position. [52] The "Pottery. [53] See also B. xxxvi. c. 4.

[54] See Chapter 40 of this Book.

[55] "Crater." A vase in which wine and water were mixed for drinking.

[56] See B. xxxiii. c. 55, B. xxxvi. c. 4, and end of B. xxxiii.

[57] See B. xxxiii. c. 36. [58] In B. viii c. 4, for instance.

mentioned, upon the pediment of the temple, was made of clay as well. We learn also from him, that it was by the same artist that the Hercules was executed, which, even to this day, is named[58] at Rome from the material of which it is composed. Such, in those times, were the most esteemed statues of the gods; and small reason have we to complain of our forefathers for worshipping such divinities as these; for in their day there was no working of gold and silver — no, not even in the service of the gods.

### CHAP. 46.—WORKS IN POTTERY.

Statues of this nature are still in existence at various places. At Rome, in fact, and in our municipal towns, we still see many such pediments of temples; wonderful too, for their workmanship, and, from their artistic merit and long duration, more deserving of our respect than gold, and certainly far less baneful. At the present day even, in the midst of such wealth as we possess, we make our first libation at the sacrifice, not from murrhine[60] vases or vessels of crystal, but from ladles[61] made of earthenware.

Bounteous beyond expression is the earth, if we only consider in detail her various gifts. To omit all mention of the cereals, wine, fruits, herbs, shrubs, medicaments, and metals, bounties which she has lavished upon us, and which have already passed under our notice, her productions in the shape of pottery alone, would more than suffice, in their variety, to satisfy our domestic wants; what with gutter-tiles of earthenware, vats for receiving wine, pipes[62] for conveying water, conduits[63] for supplying baths, baked tiles for roofs, bricks for foundations, the productions, too, of the potter's wheel; results, all of them, of an art, which induced King Numa to establish, as a seventh company,[64] that of the makers of earthenware.

Even more than this, many persons have chosen to be buried in coffins[65] made of earthenware; M. Varro, for instance, who

[58] The "Hercules fictilis." It is mentioned by Martial, B. xiv. Ep. 178.
[60] See B. xxxiii. c. 2, and B. xxxvii. cc. 7, 8, 11.
[61] "Simpuvia."
[62] See B. xxxi. c. 31.
[63] "Mammatis." The exact meaning of this word is unknown. The passage is evidently in a corrupt state.
[64] As to the Roman "Collegia," see B. viii. c. 42, and B. xxxiv. c. 1.
[65] "Solia."—The same name is given also to a kind of sitting or reclining-bath, often mentioned by Pliny.

was interred, in true Pythagorean style, in the midst of leaves of myrtle, olive, and black poplar; indeed, the greater part of mankind make use of earthen vases for this purpose. For the service of the table, the Samian pottery is even yet held in high esteem; that, too, of Arretium in Italy, still maintains its high character; while for their cups, and for those only, the manufactories of Surrentum, Asta, Pollentia, Saguntum in Spain, and Pergamus in Asia,[66] are greatly esteemed.

The city of Tralles, too, in Asia, and that of Mutina in Italy, have their respective manufactures of earthenware, and even by this branch of art are localities rendered famous; their productions, by the aid of the potter's wheel, becoming known to all countries, and conveyed by sea and by land to every quarter of the earth. At Erythræ, there are still shown, in a temple there, two amphoræ, that were consecrated in consequence of the singular thinness of the material: they originated in a contest between a master and his pupil, which of the two could make earthenware of the greatest thinness. The vessels of Cos are the most highly celebrated for their beauty, but those of Adria[67] are considered the most substantial.

In relation to these productions of art, there are some instances of severity mentioned: Q. Coponius, we find, was condemned for bribery, because he made present of an amphora of wine to a person who had the right of voting. To make luxury, too, conduce in some degree to enhance our estimation of earthenware, "tripatinium,"[68] as we learn from Fenestella, was the name given to the most exquisite course of dishes that was served up at the Roman banquets. It consisted of one dish of murænæ,[69] one of lupi,[70] and a third of a mixture of fish. It is clear that the public manners were then already on the decline; though we still have a right to hold them preferable to those of the philosophers even of Greece, seeing that the representatives of Aristotle, it is said, sold, at the auction of his goods, as many as seventy dishes of earthenware. It has been already[71] stated by us, when on the subject of birds, that a single dish cost the tragic actor Æsopus one hundred thousand sesterces; much to the reader's indignation, no doubt; but, by Hercules! Vitellius, when emperor,

[66] Asia Minor.
[67] See B. iii. c. 18. [68] A service of three dishes. [69] See B. ix. c. 39.
[70] See B. ix. cc. 24, 28, 74, 79. [71] In B. x. c. 72.

ordered a dish to be made, which was to cost a million of sesterces, and for the preparation of which a furnace had to be erected out in the fields! luxury having thus arrived at such a pitch of excess as to make earthenware even sell at higher prices than murrhine[72] vessels. It was in reference to this circumstance, that Mucianus, in his second consulship, when pronouncing one of his perorations, reproached the memory of Vitellius with his dishes as broad as the Pomptine Marsh; not less deserving to be execrated than the poisoned dish of Asprenas, which, according to the accusation brought against him by Cassius Severus, caused the death of one hundred and thirty guests.[73]

These works of artistic merit have conferred celebrity on some cities even, Rhegium for example, and Cumæ. The priests of the Mother of the gods, known as the Galli, deprive themselves of their virility with a piece of Samian[74] pottery, the only means, if we believe M. Cælius,[75] of avoiding dangerous results. He it was, too, who recommended, when inveighing against certain abominable practices, that the person guilty of them should have his tongue cut out, in a similar manner; a reproach which would appear to have been levelled by anticipation against this same Vitellius.

What is there that human industry will not devise? Even broken pottery has been utilized; it being found that, beaten to powder, and tempered with lime, it becomes more solid and durable than other substances of a similar nature; forming the cement known as the "Signine"[76] composition, so extensively employed for even making the pavements of houses.[77]

CHAP. 47. (13.)—VARIOUS KINDS OF EARTH. THE PUTEOLAN DUST, AND OTHER EARTHS OF WHICH CEMENTS LIKE STONE ARE MADE.

But there are other resources also, which are derived immediately from the earth. Who, indeed, cannot but be surprised

[72] See Note 60 above. [73] See B. xxiii. c. 47, and the end of this Book.

[74] Martial speaks of this practice, B. iii. Epigr. 81.

[75] Nothing further seems to be known of this personage, or of the grounds of his invective. Pliny may possibly allude to some abominable practices, with which Vitellius is charged by Suetonius also.

[76] The "Opus Signinum" was a plaster or cement much used for making pavements. It took its name from Signia, in Italy, celebrated for its tiles. See B. iii. c. 9.

[77] The floors of the Roman houses were seldom boarded.

at finding the most inferior constituent parts of it, known as "dust"[78] only, on the hills about Puteoli, forming a barrier against the waves of the sea, becoming changed into stone the moment of its immersion, and increasing in hardness from day to day—more particularly when mixed with the cement of Cumæ? There is an earth too, of a similar nature found in the districts about Cyzicus; but there, it is not a dust, but a solid earth, which is cut away in blocks of all sizes, and which, after being immersed in the sea, is taken out transformed into stone. The same thing may be seen also, it is said, in the vicinity of Cassandrea;[79] and at Cnidos, there is a spring of fresh water which has the property of causing earth to petrify within the space of eight months. Between Oropus and Aulis, every portion of the land upon which the sea encroaches becomes transformed into solid rock.

The finer portion of the sand of the river Nilus is not very different in its properties from the dust of Puteoli; not, indeed, that it is used for breaking the force of the sea and withstanding the waves, but only for the purpose, forsooth, of subduing[80] the body for the exercises of the palestra! At all events, it was for this purpose that it used to be brought over for Patrobius,[81] a freedman of the Emperor Nero. I find it stated also, that Craterus, Leonnatus, and Meleager, generals of Alexander the Great, had this sand transported along with their munitions of war. But I forbear to enlarge any further upon this subject; or indeed, by Hercules! upon those preparations of earth and wax of which the ceromata are made, so much employed by our youth in their exercises of the body, at the cost of all vigour of the mind.

### CHAP. 48. (14.)—FORMACEAN WALLS.

And then, besides, have we not in Africa and in Spain walls[82] of earth, known as "formaceoan" walls? from the fact that they are moulded, rather than built, by enclosing earth

[78] "Pulvis." See B. iii. c. 9, B. xvi. c. 76, and B. xxxvi. c. 14. He alludes to the cement made of volcanic ashes, now known as "Pozzuolane." [79] See B. iv. c. 17.

[80] It being the practice to rub the bodies of the athletes with sand.

[81] This circumstance is mentioned also by Suetonius, in his life of Nero. Patrobius was slain by order of the Emperor Galba.

[82] Ajasson says that they are called *tapias* at the present day in Spain.

within a frame of boards, constructed on either side. These walls will last for centuries, are proof against rain, wind, and fire, and are superior in solidity to any cement. Even at this day, Spain still beholds watch-towers that were erected by Hannibal, and turrets of earth[83] placed on the very summits of her mountains. It is from the same source, too, that we derive the substantial materials so well adapted for forming the earth-works of our camps and embankments against the impetuous violence of rivers. What person, too, is unacquainted with the fact, that partitions are made of hurdles coated with clay, and that walls are constructed of unbaked bricks?

CHAP. 49.—WALLS OF BRICK. THE METHOD OF MAKING BRICKS.

Earth for making bricks should never be extracted from a sandy or gravelly soil, and still less from one that is stony; but from a stratum that is white and cretaceous, or else impregnated with red earth.[84] If a sandy soil must be employed for the purpose, it should at least be male[85] sand, and no other. The spring is the best season for making bricks, as at midsummer they are very apt to crack. For building, bricks two years old are the only ones that are approved of; and the wrought material of them should be well macerated before they are made.

There are three different kinds of bricks; the Lydian, which is in use with us, a foot-and-a-half in length by a foot in breadth; the tetradoron; and the pentadoron; the word "doron" being used by the ancient Greeks to signify the palm[86]—hence, too, their word "doron" meaning a gift, because it is the hand that gives.—These last two kinds, therefore, are named respectively from their being four and five palms in length, the breadth being the same. The smaller kind is used in Greece for private buildings, the larger for the construction of public edifices. At Pitane,[87] in Asia, and in the cities of Maxilua and Calentum in Farther Spain, there are bricks[88] made, which float in water, when dry; the material being a sort of

[83] See B. ii. c. 73. [84] "Rubrica." [85] See B. xxxi. c. 28.

[86] Which was, as a measure, nearly three inches in breadth. See Introduction to Vol. III. [87] See B. v. c. 32.

[88] Ajasson says that these bricks have been imitated by Fabroni, with a light argillaceous earth, found in the territory of Sienna. Delafosse thinks that a place called "Cala," in the Sierra Morena, probably marks the site of the cities above mentioned.

pumice-earth, extremely good for the purpose when it can be made to unite. The Greeks have always preferred walls of brick, except in those cases where they could find silicious stone for the purposes of building: for walls of this nature will last for ever, if they are only built on the perpendicular. Hence it is, that the Greeks have built their public edifices and the palaces of their kings of brick; the wall at Athens, for example, which faces Mount Hymettus; the Temples of Jupiter and Hercules at Patræ,[89] although the columns and architraves in the interior are of stone; the palace of King Attalus at Tralles; the palace of Crœsus at Sardes, now converted into an asylum[90] for aged persons; and that of King Mausolus at Halicarnassus; edifices, all of them, still in existence.

Muræna and Varro, in their ædileship, had a fine fresco painting, on the plaster of a wall at Lacedæmon, cut away from the bricks, and transported in wooden frames to Rome, for the purpose of adorning the Comitium. Admirable as the work was of itself, it was still more admired after being thus transferred. In Italy also there are walls of brick, at Arretium and Mevania.[91] At Rome, there are no buildings of this description, because a wall only a foot-and-a-half in thickness would not support more than a single story; and by public ordinance it has been enacted that no partition should exceed that thickness; nor, indeed, does the peculiar construction of our party-walls admit of it.

### CHAP. 50. (15.)—SULPHUR, AND THE SEVERAL VARIETIES OF IT: FOURTEEN REMEDIES.

Let thus much be deemed sufficient on the subject of bricks. Among the other kinds of earth, the one of the most singular nature, perhaps, is sulphur, an agent of great power upon other substances. Sulphur is found in the Æolian Islands, between Sicily and Italy, which are volcanic, as already[92] stated. But the finest sulphur of all, is that which comes from the Isle of Melos. It is obtained also in Italy, upon the range of hills in the territories of Neapolis and Campania, known as the Leucogæi:[93] when extracted from the mines there, it is purified by the agency of fire.

[89] See B. iv. c. 5, and B. xxxvi. c. 4.
[90] "Gerusia." [91] See B. iii. c. 19. [92] In B. iii. c. 6.
[93] See B. xviii. c. 29.

There are four kinds of sulphur; the first of which is "live" sulphur, known as "apyron"[94] by the Greeks, and found in solid masses, or in other words, in blocks. This, too, is the only sulphur that is extracted in its native state, the others being found in a state of liquescence, and requiring to be purified by being boiled in oil. This kind is green and transparent, and is the only sulphur that is used for medicinal purposes. A second kind is known as the "glebaceous"[95] sulphur, and is solely employed in the workshops of the fullers. The third kind, also, is only used for a single purpose, that of fumigating wool, a process which contributes very greatly to making the wool white and soft; "egula"[95] is the name given to it. The fourth kind is used in the preparation of matches more particularly.

In addition to these several uses, sulphur is of such remarkable virtue, that if it is thrown upon the fire it will at once detect, by the smell, whether or not a person is subject to epilepsy. Anaxilaüs used to employ this substance by way of pastime: putting sulphur in a cup of wine, with some hot coals beneath, he would hand it round to the guests, the light given by it, while burning, throwing a ghastly paleness like that of death upon the face of each. Its properties are calorific and maturative, in addition to which, it disperses abscesses on the body: hence it is that it is used as an ingredient in plasters and emollient poultices. Applied to the loins and kidneys, with grease, when there are pains in those parts, it is marvellously effectual as a remedy. In combination with turpentine, it removes lichens on the face, and leprosy,[96] the preparation being known as "harpax,"[97] from the celerity with which it acts upon the skin; for which reason it ought to be removed every now and then. Employed as an electuary, it is good for asthma, purulent expectorations, and stings inflicted by scorpions. Live sulphur, mixed with nitre, and then bruised with vinegar and applied, causes morphew to disappear, and destroys nits in the hair; in combination, too, with sandarach and vinegar, it is good for diseases of the eyelids.

Sulphur has its place among our religious ceremonies, being used as a fumigation for purifying houses.[98] Its virtues are

[94] "Untouched by fire." Native sulphur. [95] "Gleba."

[96] Sulphur has been always considered highly useful for the cure of cutaneous affections. [97] From ἁρπαζω, "to carry away."

[98] Ovid, in his "Art of Love," speaks of purifying houses with eggs and sulphur.

also to be perceived in certain hot mineral waters;[99] and there is no substance that ignites more readily, a proof that there is in it a great affinity to fire. Lightning and thunder are attended with a strong smell of sulphur, and the light produced by them is of a sulphureous complexion.

### CHAP. 51.—BITUMEN, AND THE SEVERAL VARIETIES OF IT; TWENTY-SEVEN REMEDIES.

Nearly approaching to the nature of sulphur is that of bitumen,[1] which in some places assumes the form of a slime, and in others that of an earth; a slime, thrown up, as already[2] stated, by a certain lake in Judæa, and an earth, found in the vicinity of Sidon, a maritime town of Syria. In both these states, it admits of being thickened and condensed. There is also a liquid[3] bitumen, that of Zacynthus, for example, and the bitumen that is imported from Babylon; which last kind is also white: the bitumen, too, of Apollonia is liquid. All these kinds, in Greek, have the one general name of "pissasphaltos,"[4] from their strong resemblance to a compound of pitch and bitumen. There is also found an unctuous liquid bitumen, resembling oil, in a spring at Agrigentum, in Sicily, the waters of which are tainted by it. The inhabitants of the spot collect it on the panicles of reeds, to which it very readily adheres, and make use of it for burning in lamps, as a substitute for oil, as also for the cure of itch-scab in beasts of burden.

Some authorities include among the bitumens, naphtha, a substance which we have already mentioned in the Second Book;[5] but the burning properties which it possesses, and its susceptibility of igniting, render it quite unfit for use. Bitumen, to be of good quality, should be extremely brilliant, heavy, and massive; it should also be moderately smooth, it being very much the practice to adulterate it with pitch. Its medi-

[99] See B. xxxi. c. 32.

[1] There are three distinct kinds of bitumen. 1. Naphtha, also known as petroleum, or rock-oil, inflammable, volatile, soluble in alcohol, and found in France and Italy. 2. Asphalt, or bitumen of Judæa, solid, insoluble in alcohol, and found in Lake Asphaltites in Syria, more particularly. 3. Pissasphalt, of a medium consistency between the other substances, of which it appears to be composed. See B. xxiv. c. 25.

[2] In B. v. c. 15 [3] Naphtha, most probably. [4] See B. xxiv. c. 25.

[5] Chapter 109.

cinal properties are similar to those of sulphur, it being naturally astringent, dispersive, contractive, and agglutinating: ignited, it drives away serpents by the smell. Babylonian bitumen is very efficacious, it is said, for the cure of cataract and albugo, as also of leprosy, lichens, and pruriginous affections. Bitumen is employed, too, in the form of a liniment, for gout; and every variety of it is useful for making bandolines for eyelashes that are refractory and impede the sight. Applied topically with nitre,[6] it is curative of tooth-ache, and, taken internally, with wine, it alleviates chronic coughs and difficulty of respiration. It is administered in a similar manner for dysentery, and is very good for arresting looseness of the bowels. Taken internally with vinegar, it dissolves and brings away coagulated blood. It modifies pains also in the loins and joints, and, applied with barley-meal, it forms a peculiar kind of plaster, to which it has given its name.[7] It stanches blood also, heals wounds, and unites the sinews when severed. Bitumen is administered for quartan fevers, in doses of one drachma to an equal quantity of hedyosmos,[8] the whole kneaded up with one obolus of myrrh. The smell of burnt bitumen detects a tendency to epilepsy, and, applied to the nostrils with wine and castoreum,[9] it dispels suffocations of the uterus. Employed as a fumigation, it acts as a check upon procidence of the uterus, and, taken internally with wine, it has the effect of an emmenagogue.

Another use that is made of it, is for coating the inside of copper vessels, it rendering them proof against the action of fire. It has been already[10] stated that bitumen was formerly employed for staining copper and coating statues. It has been used, too, as a substitute for lime; the walls of Babylon, for instance, which are cemented with it. In the smithies they are in the habit of varnishing iron and heads of nails with it, and of using it for many other purposes as well.

### CHAP. 52.—ALUMEN, AND THE SEVERAL VARIETIES OF IT; THIRTY-EIGHT REMEDIES.

Not less important, or indeed very dissimilar, are the uses

[6] As to the "nitrum" of Pliny, see B. xxxi. c. 46.
[7] "Asphalt plaster," probably.
[8] Or mint. See B. xix. c. 47, and B. xx. c. 53.
[9] See B. xxxii. c. 13.
[10] In B. xxxiv. c. 9.

that are made of alumen;[11] by which name is understood a sort of brine[12] which exudes from the earth. Of this, too, there are several kinds. In Cyprus there is a white alumen, and another kind of a darker colour. The difference, however, in their colour is but trifling in reality, though the uses made of them are very dissimilar; the white liquid alumen being employed for dyeing[13] wool of bright colours, and the black, on the other hand, for giving wool a tawny or a sombre tint. Gold, too, is purified[14] by the agency of black alumen. Every kind of alumen is a compound of slime and water, or in other words, is a liquid product exuding from the earth; the concretion of it commencing in winter, and being completed by the action of the summer sun. That portion of it which is the first matured, is the whitest in appearance.

The countries which produce this substance, are Spain, Ægypt, Armenia, Macedonia, Pontus, Africa,[15] and the islands of Sardinia, Melos, Lipara, and Strongyle:[16] the most esteemed, however, is that of Egypt,[17] the next best being the produce of Melos. Of this last kind there are also two varieties, the liquid alumen, and the solid. Liquid alumen, to be good, should be of a limpid, milky, appearance: when rubbed between the fingers it should be free from grit, and productive of a slight sensation of heat. The name given to it is "phorimon."[18] The mode of detecting whether or not it has been adulterated, is by the application of pomegranate-juice; for if genuine, it will turn black on combining with the juice. The other, or solid alumen, is pale and rough in ap-

[11] Beckmann is of opinion that our *alum* was not known to the Greeks or Romans, and that what the latter called "alumen" was green vitriol, or sulphate of the protoxide of iron, in an impure state. Hist. Inv. Vol. I. p. 180. *Bohn's Edition.* Dr. Pereira remarks, however, that "there can be little doubt that Pliny was acquainted with our alum, but did not distinguish it from sulphate of iron, for he informs us that one kind of alum was white, and was used for dyeing wool of bright colours." Materia Medica, Vol. I. Delafosse identifies the "alumen" of Pliny with double sulphate of alum and iron.

[12] "Salsugo terræ."

[13] See Note 11 above.

[14] For gilding, Hardouin says.

[15] The Roman provinces in Africa, other than Egypt.

[16] Now Strombolo. See B. iii. c. 14.

[17] Herodotus, B. ii., mentions the fact that King Amasis sent the people of Delphi a thousand talents of this substance, as his contribution towards rebuilding their temple.

[18] "Fruitful," or "useful."

pearance, and turns black on the application of nut-galls; for which reason it is known by the name of "paraphoron."[19]

Liquid alumen is naturally astringent, indurative, and corrosive: used in combination with honey, it heals ulcerations of the mouth, pimples, and pruriginous eruptions. The remedy, when thus used, is employed in the bath, the proportions being two parts of honey to one of alumen. It has the effect, also, of checking and dispersing perspiration, and of neutralizing offensive odours of the arm-pits. It is taken too, in the form of pills, for affections of the spleen, and for the purpose of carrying off blood by the urine: incorporated with nitre and melanthium,[20] it is curative of itch-scab.

There is one kind of solid alumen, known to the Greeks as "schiston,"[21] which splits into filaments of a whitish colour; for which reason some have preferred giving it the name of "trichitis."[22] It is produced from the mineral ore known to us as "chalcitis,"[23] from which copper is also produced, it being a sort of exudation from that mineral, coagulated into the form of scum. This kind of alumen is less desiccative than the others, and is not so useful as a check upon bad humours of the body. Used, however, either in the form of a liniment or of an injection, it is highly beneficial to the ears; as also for ulcerations of the mouth, and for tooth-ache, if retained with the saliva in the mouth. It is employed also as a serviceable ingredient in compositions for the eyes, and for the generative organs in either sex. The mode of preparing it is to roast it in crucibles, until it has quite lost its liquid form.

There is another variety of alumen also, of a less active nature, and known as "strongyle;"[24] which is again subdivided into two kinds; the fungous, which easily dissolves in any liquid, and is looked upon as altogether worthless; and the porous, which is full of small holes like a sponge, and in pieces of a globular form, more nearly approaching white alumen in appearance. It has a certain degree, too, of unctuousness, is free from grit, friable, and not apt to blacken the

[19] "Adulterated." [20] See B. xx. c. 71.

[21] "Split" alum. Probably iron alum, the French *alum de plume*; of a flaky, silky appearance. [22] "Hairy alum."

[23] See B. xxxiv. cc. 2, 29.

[24] So called, according to Dioscorides, from the "round" form of the pieces.

fingers. This last kind is calcined by itself upon hot coals, unmixed with any other substance, until it is entirely reduced to ashes.

The best kind of all, however, is that called "melinum,"[25] as coming from the Isle of Melos, as already mentioned; none being more effectual for acting as an astringent, staining black, and indurating, and none assuming a closer consistency. It removes granulations of the eye-lids, and, in a calcined state, is still more efficacious for checking defluxions of the eyes: in this last form, too, it is employed for the cure of prurigi-nous eruptions on the body. Whether taken internally, or employed externally, it arrests discharges of blood; and if it is applied with vinegar to a part from which the hair has been first removed, it will change into a soft down the hair which replaces it. The leading property of every kind of alumen is its remarkable astringency, to which, in fact, it is indebted for its name[26] with the Greeks. It is for this property that the various kinds are, all of them, so remarkably good for the eyes. In combination with grease, they arrest discharges of blood; and they are employed in a similar manner for check-ing the spread of putrid ulcers, and for removing sores upon the bodies of infants.

Alumen has a desiccative effect upon dropsical eruptions; and, in combination with pomegranate juice, it removes dis-eases of the ears, malformed nails, indurations resulting from cicatrization, hangnails, and chilblains. Calcined, with vine-gar or nut-galls, in equal proportions, it is curative of phage-dænic ulcers; and, in combination with extracted juice of cabbage, of leprosy. Used in the proportion of one part of alumen to two of salt, it arrests the progress of serpiginous eruptions; and an infusion of it in water destroys lice and other parasitical insects that infest the hair. Employed in a similar manner, it is good for burns; and, in combination with the serous[27] part of pitch, for furfuraceous eruptions on the body. It is used also as an injection for dysentery, and, em-ployed in the form of a gargle, it braces the uvula and tonsil-lary glands. For all those maladies which we have men-

[25] He has previously said that the most esteemed kind was the Egyptian, that of Melos being the next best.

[26] Στυπτηρία, the "styptic."

[27] "Sero picis." Hardouin is of opinion that under this name pisse-læon is intended. See B. xv. c. 7, B. xxiv. cc. 11, 24, and B. xxv. c. 22.

tioned as being treated with the other kinds of alumen, that imported from Melos, be it understood, is still more efficacious. As to the other uses that are made of it for industrial purposes, such as preparing hides and wool, for example, they have been mentioned already.[28]

CHAP. 53. (16.)—SAMIAN EARTH: THREE REMEDIES.

In succession to these, we shall now have to speak of various other kinds of earth[29] which are made use of in medicine.

Of Samian earth there are two varieties; one known as "collyrium,"[30] the other by the name of "aster."[31] To be in perfection, the first kind should be fresh, remarkably smooth, and glutinous to the tongue; the second being of a more solid consistency, and white. They are both prepared for use by being calcined and then rinsed in water, some persons giving the preference to the first. They are both of them useful for discharges of blood from the mouth, and are employed as an ingredient in plasters of a desiccative nature. They are used also in the preparation of ophthalmic compositions.

CHAP. 54.—THE VARIOUS KINDS OF ERETRIA.

Of eretria, or Eretrian[32] earth, there are also the same number of varieties; one white, and the other of an ashy colour, this last being preferred in medicine. To be good, this earth should be of a soft consistency, and when rubbed upon copper it should leave a violet tint. The virtues of eretria in a medicinal point of view, and the methods of using it, have been already mentioned[33] in our description of the pigments.

CHAP. 55.—THE METHOD OF WASHING EARTHS FOR MEDICINAL PURPOSES.

All these earths—for we will take the present opportunity of mentioning it—are well washed in water, and then dried

[28] At the beginning of this Chapter in part.

[29] Aluminous silicates, as Delafosse remarks, more or less combined with other minerals. Though employed for various purposes in the arts, they are now but little used in medicine.

[30] Probably because it was the more extensively employed of the two, in "collyria," or compositions for the eyes. [31] "Star" earth, apparently

[32] From Eretria, in Eubœa. See B. iv. c. 21.

[33] In Chapter 21 of this Book.

in the sun; after which, they are again triturated in water, and left to settle: this done, they are divided into tablets. They are usually boiled in earthen vessels, which are well shaken every now and then.

CHAP. 56.—CHIAN EARTH; THREE REMEDIES. SELINUSIAN EARTH; THREE REMEDIES. PNIGITIS; NINE REMEDIES. AMPELITIS; FOUR REMEDIES.

Among the medicinal substances, there is the white earth of Chios also, the properties of which are the same as those of Samian earth. It is used more particularly as a cosmetic for the skin of females; the Selinusian[34] earth being also employed for a similar purpose. This last is of a milk-white colour, and melts very rapidly in water: dissolved in milk, it is employed for whitening the plaster coats on walls. Pnigitis[35] is very similar to Eretrian earth, only that it is found in larger masses, and is of a glutinous consistency. Its effects are similar to those produced by Cimolian[36] earth, but are not so energetic.

Ampelitis[37] is an earth which bears a strong resemblance to bitumen. The test of its goodness is its dissolving in oil, like wax, and preserving its black colour when submitted to the action of fire. Its properties are emollient and repercussive; for which reason, it is used in medicinal compositions, those known as "calliblephara,"[38] more particularly, and in preparations for dyeing the hair.

CHAP. 57. (17.)—CRETACEOUS EARTHS USED FOR SCOURING CLOTH. CIMOLIAN EARTH; NINE REMEDIES. SARDINIAN EARTH. UMBRIAN EARTH. SAXUM.

Of cretaceous[39] earths there are several varieties; and among

[34] It appears to be a matter of doubt whether it was found at Selinus, in Sicily, or the place of that name in Cilicia. See B. iii. c. 14, and B. v. c. 22.

[35] Agricola is of opinion that this earth had its name from the place called Pnigeum, in the Libyan Mareotis. Other commentators would have it to be derived from πνίγω, "to suffocate," such being its effect if taken internally.

[36] See the next Chapter.

[37] So called from ἄμπελος, a "vine;" either because it was applied to vines to kill the insects, or because its admixture with the soil was favourable to the cultivation of the vine.

[38] "Washes for beautifying the eye-brows." See B. xxi. c. 73, B. xxiii. c. 51, and B. xxxiii. c. 34.

[39] Cimolian earth, known in modern chemistry as Cimolite, is not a

them, two kinds of Cimolian earth, employed in medicine, the one white and the other inclining to the tint of purpurissum.[40] Both kinds, moistened with vinegar, have the effect of dispersing tumours and arresting defluxions. They are curative also of inflammatory swellings and imposthumes of the parotid glands; and, applied topically, they are good for affections of the spleen and pustules on the body. With the addition of aphronitrum,[41] oil of cypros,[42] and vinegar, they reduce swellings of the feet, care being taken to apply the lotion in the sun, and at the end of six hours to wash it off with salt and water. In combination with wax and oil of cypros, Cimolian earth is good for swellings of the testes.

Cretaceous earths, too, are of a cooling tendency, and, applied to the body in the form of a liniment, they act as a check upon excessive perspiration: taken with wine, in the bath, they remove pimples on the body. The most esteemed of all these earths is that of Thessaly: it is found also in the vicinity of Bubon[43] in Lycia.

Cimolian earth is used also for another purpose, that of scouring cloth. As to the kind which is brought from Sardinia, and is known as "sarda," it is used for white tissues only, and is never employed for coloured cloths. Indeed, this last is held in the lowest estimation of all the Cimolian earths; whereas, that of Umbria is more highly esteemed, as also the kind generally known as "saxum."[44] It is a property of this last to increase in weight[45] by maceration, and it is by weight that it is usually sold, Sardinian earth being sold by measure. Umbrian earth is only used for giving lustre to cloths.

It will not be deemed out of place to give some further account here of this process, there being still in existence the Metilian Law, relative to fullers; an enactment which C. Flaminius and L. Æmilius, in their censorship,[46] had passed by

cretaceous earth, but an aluminous silicate, still found in the island of Kimoli, or Argentiera, one of the Cyclades; See B. iv. c. 23. Tournefort describes it as a white chalk, very heavy, tasteless, and dissolving in water. It is found also at Alexandrowsk in Russia.

[40] See Chapter 25 of this Book.

[41] See B. xxxi. c. 46.

[42] See B. xii. c. 51.

[43] See B. v. c. 28.

[44] Beckmann thinks that this may have been our common chalk. Vol. II. p. 105.

[45] This *seems* to be the meaning of "crescit in macerando."

[46] A.U.C. 535, it is supposed.

the people,[47] so attentive to everything were our ancestors. The following then is the method employed in preparing cloth: it is first washed in an infusion of Sardinian earth, and is then exposed to a fumigation with sulphur. This done, it is scoured[48] with Cimolian earth, when the cloth has been found to be of a genuine colour; it being very soon detected when it has been coloured with spurious materials, by its turning black and the colours becoming dispersed[50] by the action of the sulphur. Where the colours are genuine and rich, they are softened by the application of Cimolian earth; which brightens and freshens them also when they have been rendered sombre by the action of the sulphur. Saxum is better for white tissues, after the application of sulphur, but to coloured cloths it is highly injurious.[51] In Greece they use Tymphæan[52] gypsum in place of Cimolian earth.

CHAP. 58. — ARGENTARIA. NAMES OF FREEDMEN WHO HAVE EITHER RISEN TO POWER THEMSELVES, OR HAVE BELONGED TO MEN OF INFLUENCE.

There is another cretaceous earth, known as "argentaria,"[53] from the brightness[54] which it imparts to silver. There is also the most inferior kind of chalk; which was used by the ancients for tracing the line of victory[55] in the Circus, and for marking the feet of slaves on sale, that were brought from beyond sea. Such, for instance, were Publilius[56] Lochius, the

[47] As a plebiscitum.

[48] "Desquamatur." This is most probably the meaning of the word, though Beckmann observes "that it was undoubtedly a term of art, which cannot be further explained, because we are unacquainted with the operation to which it alludes."—Vol II. p. 104. *Bohn's Edition.*

[50] "Funditur sulphure." The meaning of these words is very doubtful. Beckmann proposes to read "offenditur," but he is not supported by any of the MSS. He has evidently mistaken the meaning of the whole passage.

[51] Probably because it was too calcareous, Beckmann thinks.

[52] See B. iv. c. 3, and B. xxxvi. c. 59.

[53] Plate powder; from "argentum," "silver." See B. xvii. c. 4.

[54] Whitening, or chalk washed and prepared, is still used for this purpose.

[55] The goal for the chariots.

[56] This reading is restored by Sillig from the Bamberg MS., but no particulars are known relative to the person alluded to; unless, indeed, as Sillig suspects to be the case, he is identical with Publius Syrus, the writer of mimes, mentioned in B. viii. c. 77.

founder of our mimic scenes; his cousin, Manilius Antiochus,[57] the first cultivator of astronomy; and Staberius Eros, our first grammarian; all three of whom our ancestors saw brought over in the same ship.[58]

(18.) But why mention these names, recommended as they are by the literary honours which they acquired? Other instances too, Rome has beheld of persons rising to high positions from the slave-market;[59] Chrysogonus, for example, the freedman of Sylla; Amphion, the freedman of Q. Catulus; the man who was the keeper[60] of Lucullus; Demetrius, the freedman of Pompeius, and Auge, the freedwoman of Demetrius,[61] or else of Pompeius himself, as some have supposed; Hipparchus, the freedman of M. Antonius; as also, Menas[62] and Menecrates,[63] freedmen of Sextus Pompeius, and many others as well, whom it would be superfluous to enumerate, and who have enriched themselves at the cost of Roman blood, and the licence that results from proscription.

Such is the mark that is set upon those droves of slaves which we see on sale, such the opprobrium thrown upon them by a capricious fortune! And yet, some of these very men have we beheld in the enjoyment of such power and influence, that the senate itself has decreed them—at the command of Agrippina,[64] wife of the Emperor Claudius—the decorations even of the prætorship: all but honoured with the fasces and their laurels, in fact, and sent back in state to the very place from which they originally came, with their feet whitened with the slave-dealer's chalk!

[57] Supposed by some to have been the Manilius who was author of the poem called "Astronomica," still in existence. It is more probable, however, that he was the father of the poet, or perhaps the grandfather; as it is clear from a passage in Suetonius, that Staberius Eros taught at Rome during the civil wars of Sylla, while the poem must have been written, in part at least, after the death of Augustus.

[58] Being afterwards manumitted. Sillig thinks that they may have arrived in Rome about B.C. 90.

[59] "Catasta." A raised platform of wood on which the slaves were exposed for sale.

[60] "Rectorem." For an explanation of this allusion, see B. xxviii. c. 14.

[61] A native of Gadara in Syria, according to Josephus. Seneca speaks of him as being more wealthy than his master.

[62] Or Menodorus, who deserted Sextus Pompeius and went over to Octavianus.

[63] Who remained faithful to Pompeius, and died in his cause.

[64] He is probably speaking in reference to her paramour, the freedman Pallas. See B. xxxiii. c. 47.

CHAP. 59. (19.)—THE EARTH OF GALATA; OF CLYPEA; OF THE BALEARES; AND OF EBUSUS.

In addition to these, there are various other kinds of earth, endowed with peculiar properties of their own, and which have been already mentioned on former occasions.[65] We may, however, take the present opportunity of again remarking the following properties. The earth of the island of Galata and of the vicinity of Clypea, in Africa, is fatal to scorpions; and that of the Balearic Islands and of Ebusus kills serpents.

SUMMARY.—Remedies, narratives, and observations, nine hundred and fifty-six.

ROMAN AUTHORS QUOTED.—Messala[1] the Orator, the Elder Messala,[2] Fenestella,[3] Atticus,[4] M. Varro,[5] Verrius,[6] Cornelius Nepos,[7] Deculo,[8] Mucianus,[9] Melissus,[10] Vitruvius,[11] Cassius Severus Longulanus,[12] Fabius Vestalis,[13] who wrote on Painting.

FOREIGN AUTHORS QUOTED.—Pasiteles,[14] Apelles,[15] Melanthius,[16] Asclepiodorus,[17] Euphranor,[18] Heliodorus,[19] who wrote on the Votive Offerings of the Athenians, Metrodorus,[20] who wrote on Architecture, Democritus,[21] Theophrastus,[22] Apion[23]

[65] As to the earths of Galata and Clypea, see B. v. c. 7. The others are mentioned in B. iii. c. 11.

[1] See end of B. ix. [2] See end of B. xxxiv. [3] See end of B. viii.
[4] See end of Books vii. and xiv. [5] See end of B. ii.
[6] See end of B. iii. [7] See end of B. ii. [8] See end of B. x.
[9] See end of B. ii. [10] See end of B. vii. [11] See end of B. xvi.

[12] A native of Longula in Latium. Though of dissolute character, he was famous as an orator and satirical writer. It was he who accused Nonius Asprenas of poisoning, as mentioned in Chapter 46 of this Book. He died in exile at the island of Seriphos, about A.D. 33. His works were at first proscribed, but were afterwards permitted by Caligula to be read.

[13] See end of B. vii. [14] See end of B. xxxiii.

[15] The painter, mentioned at great length in Chapter 36 of this Book, and elsewhere.

[16] A painter of Sicyon, mentioned in Chapters 32 and 36 of this Book.

[17] Probably the painter of that name, mentioned in Chapter 36 of this Book.

[18] The artist mentioned in B. xxxiv. c. 19, and in Chapter 40 of the present Book. [19] See end of B. xxxiii.

[20] Possibly the painter of that name, mentioned in Chapter 40 of this Book. [21] See end of B. ii. [22] See end of B. iii.

[23] See end of B. xxx.

the grammarian, who wrote on the Medicines derived from Metals, Nymphodorus,[24] Iollas,[25] Apollodorus,[26] Andreas,[27] Heraclides,[28] Diagoras,[29] Botrys,[30] Archidemus,[31] Dionysius,[32] Aristogenes,[33] Democles,[34] Mnesides,[35] Xenocrates[36] the son of Zeno, Theomnestus.[37]

[24] See end of B. iii.
[25] See end of B. xii.
[26] See end of Books iv., viii., xi., and xx.
[27] See end of B. xx.
[28] See end of Books iv. and xii.
[29] See end of B. xii.
[30] See end of B. xiii.
[31] See end of B. xii.
[32] See end of B. xii.
[33] See end of B. xxix.
[34] See end of B. xii.
[35] See end of B. xii.
[36] See end of B. xxxiii.
[37] See end of B. xxxiii.

# BOOK XXXVI.

## THE NATURAL HISTORY OF STONES.

### CHAP. 1. (1.)—LUXURY DISPLAYED IN THE USE OF VARIOUS KINDS OF MARBLE.

It now remains for us to speak of stones, or, in other words, the leading folly of the day; to say nothing at all of our taste for gems and amber, crystal and murrhine vases.[1] For everything of which we have previously treated, down to the present Book, may, by some possibility or other, have the appearance of having been created for the sake of man: but as to the mountains, Nature has made those for herself, as a kind of bulwark for keeping together the bowels of the earth; as also for the purpose of curbing the violence of the rivers, of breaking the waves of the sea, and so, by opposing to them the very hardest of her materials, putting a check upon those elements which are never at rest. And yet we must hew down these mountains, forsooth, and carry them off; and this, for no other reason than to gratify our luxurious inclinations: heights which in former days it was reckoned a miracle even to have crossed!

Our forefathers regarded as a prodigy the passage of the Alps, first by Hannibal,[2] and, more recently, by the Cimbri: but at the present day, these very mountains are cut asunder to yield us a thousand different marbles, promontories are thrown open to the sea, and the face of Nature is being everywhere reduced to a level. We now carry away the barriers that were destined for the separation of one nation from another; we construct ships for the transport of our marbles; and, amid the waves, the most boisterous element of Nature, we convey the summits of the mountains to and fro: a thing, however, that is even less unpardonable than to go on the

[1] See B. xxxvii. cc. 7, 8, 11.

[2] See the lines of Juvenal, Sat. x. l. 151, *et seq.*

search amid the regions of the clouds for vessels[3] with which to cool our draughts, and to excavate rocks, towering to the very heavens, in order that we may have the satisfaction of drinking from ice! Let each reflect, when he hears of the high prices set upon these things, when he sees these ponderous masses carted and carried away, how many there are whose life is passed far more happily without them. For what utility or for what so-called pleasure do mortals make themselves the agents, or, more truly speaking, the victims of such undertakings, except in order that others may take their repose in the midst of variegated stones? Just as though too, the shades of night, which occupy one half of each man's existence, would forbear to curtail these imaginary delights.

### CHAP. 2.—WHO WAS THE FIRST TO EMPLOY MARBLE IN PUBLIC BUILDINGS.

Indeed, while making these reflections, one cannot but feel ashamed of the men of ancient times even. There are still in existence censorial[4] laws, which forbid the kernels[5] in the neck of swine to be served at table, dormice too, and other things too trifling to mention: and yet there has been no law passed, forbidding marble to be imported, or the seas to be traversed in search of it!

(2.) It may possibly be observed, that this was, because marble was not then introduced. Such, however, is not the fact; for in the ædileship of M. Scaurus,[6] three hundred and sixty columns were to be seen imported; for the decorations of a temporary theatre, too, one that was destined to be in use for barely a single month. And yet the laws were silent thereon; in a spirit of indulgence for the amusements of the public, no doubt. But then, why such indulgence? or how do vices more insidiously steal upon us than under the plea of serving the public? By what other way, in fact, did ivory, gold, and precious stones, first come into use with private individuals?

Can we say that there is now anything that we have reserved for the exclusive use of the gods? However, be it so, let us admit of this indulgence for the amusements of the public; but still, why did the laws maintain their silence

[3] He alludes to vessels made of crystal, which, as Dalechamps remarks, was long supposed to be nothing but ice in a concrete form. See B. xxxvii. c. 9. [4] See B. viii. c. 82. [5] "Glandia."

[6] See Chapter 24 of this Book.

when the largest of these columns, pillars of Lucullan[7] marble, as much as eight-and-thirty feet in height, were erected in the atrium of Scaurus? a thing, too, that was not done privately or in secret; for the contractor for the public sewers compelled him to give security for the possible damage that might be done in the carriage of them to the Palatium.[8] When so bad an example as this was set, would it not have been advisable to take some precautions for the preservation of the public morals? And yet the laws still preserved their silence, when such enormous masses as these were being carried past the earthenware[9] pediments of the temples of the gods, to the house of a private individual!

### CHAP. 3. (3.)—WHO WAS THE FIRST TO ERECT COLUMNS OF FOREIGN MARBLE AT ROME.

And yet it cannot be said that Scaurus, by way of a first essay in vice, took the City by surprise, in a state of ignorance and totally unguarded against such evils as these. Already had L. Crassus,[10] the orator, he who was the first to possess pillars of foreign marble, and in this same Palatium too, received from M. Brutus, on the occasion of a dispute, the nickname of the "Palatine Venus," for his indulgence in this kind of luxury. The material, I should remark, was Hymettian marble, and the pillars were but six in number, and not exceeding some twelve feet in height. Our forefathers were guilty of this omission, no doubt, because morals were universally contaminated; and, seeing that things which had been interdicted had been forbidden in vain, they preferred the absence of laws to laws that were no better than a dead letter. These particulars and others in the sequel will show that we are so far improved; for who is there at the present day that has, in his atrium, any such massive columns as these of Scaurus?

But before proceeding to treat of the several varieties of this material, it will be as well to mention the various artists, and the degrees of estimation in which they are held, who have worked in marble. We will, therefore, proceed to review the sculptors who have flourished at different periods.

[7] See Chapter 8 of this Book.
[8] In the Eleventh Region of the City.
[9] See B. xxxv. cc. 43, 45.
[10] See B. xvii. c. 1.

CHAP. 4. (4.)—THE FIRST ARTISTS WHO EXCELLED IN THE SCULPTURE OF MARBLE; AND THE VARIOUS PERIODS AT WHICH THEY FLOURISHED. THE MAUSOLEUM IN CARIA. THE MOST CELEBRATED SCULPTORS AND WORKS IN MARBLE, TWO HUNDRED AND TWENTY-FIVE IN NUMBER.

The first artists who distinguished themselves in the sculpture of marble, were Dipœnus[11] and Scyllis, natives of the Isle of Crete. At this period the Medians were still in power, and Cyrus had not begun to reign in Persia; their date being about the fiftieth Olympiad. They afterwards repaired to Sicyon, a state which for a length of time[12] was the adopted country of all such pursuits as these. The people of Sicyon had made a contract with them for the execution of certain statues of the gods; but, before completing the work, the artists complained of some injustice being done them, and retired to Ætolia. Immediately upon this, the state was afflicted with sterility and famine, and dreadful consternation was the result. Upon enquiry being made as to a remedy for these evils, the Pythian Apollo made answer, that Dipœnus and Scyllis must complete the statues of the gods; an object which was attained at the cost of great concessions and considerable sums of money. The statues were those of Apollo,[13] Diana, Hercules, and Minerva; the last of which was afterwards struck by lightning.

(5.) Before these artists were in existence, there had already appeared Melas, a sculptor of the Isle of Chios; and, in succession to him, his son Micciades, and his grandson Archermus;[14] whose sons, Bupalus and Athenis, afterwards attained the highest eminence in the art. These last were contemporaries of the poet Hipponax, who, it is well known, lived in the sixtieth Olympiad. Now, if a person only reckons, going upwards from their time to that of their great-grandfather, he will find

[11] These two artists are invariably mentioned together. Pausanias, B. ii. c. 14, and B. iii. c. 17, speaks of them as the pupils or sons of Dædalus; only intimating thereby, as Sillig thinks, that they were the first sculptors worthy of being associated with the father of artists. Pausanias, B. ii. c. 22, mentions ebony statues by them.

[12] In the time of the Telchines, before the arrival of Inachus in Argolis.

[13] Pausanias says that this statue was completed by their pupils. Clemens Alexandrinus mentions other works of theirs.

[14] Another reading is "Anthermus." Of many of these sculptors, no further particulars are known.

that the art of sculpture must have necessarily originated about the commencement of the era of the Olympiads. Hipponax being a man notorious for his ugliness, the two artists, by way of joke,[15] exhibited a statue of him for the ridicule of the public. Indignant at this, the poet emptied upon them all the bitterness of his verses; to such an extent indeed, that, as some believe, they were driven to hang themselves in despair. This, however, is not the fact; for, at a later period, these artists executed a number of statues in the neighbouring islands; at Delos for example, with an inscription subjoined to the effect, that Chios was rendered famous not only by its vines[15*] but by the works of the sons of Archermus as well. The people of Lasos[16] still show a Diana that was made by them; and we find mention also made of a Diana at Chios, the work of their hands: it is erected on an elevated spot, and the features appear stern to a person as he enters, and joyous as he departs. At Rome, there are some statues by these artists on the summit of the Temple[17] of the Palatine Apollo, and, indeed, in most of the buildings that were erected by the late Emperor Augustus. At Delos and in the Isle of Lesbos there were formerly some sculptures by their father to be seen. Ambracia too, Argos, and Cleonæ, were filled with productions of the sculptor Dipœnus.

All these artists, however, used nothing but the white marble of the Isle of Paros, a stone which was known as "lychnites" at first, because, according to Varro, it was cut in the quarries by lamplight.[18] Since their time, many other whiter marbles have been discovered, and very recently that of the quarries of Luna.[19] With reference to the marble of Paros, there is one very marvellous circumstance related; in a single block that was split with wedges, a figure[20] of Silenus made its appearance.

[15] Another cause of the quarrel is said to have been the refusal of Bupalus to give his daughter in marriage to Hipponax. This quarrel is referred to in the Greek Anthology, B. iii. Epigr. 26.

[15*] See B. xiv. c. 9. [16] See B. iv. c. 20.

[17] Dedicated by Augustus, in the Tenth Region of the City.

[18] Λύχνος being the Greek for a "lamp."

[19] See B. iii. c. 8: now known as the marble of Massa and Carrara, of bluish white, and a very fine grain.

[20] A similar case has been cited, in the figure of St. Jerome, to be seen on a stone in the Grotto of Our Saviour at Bethlehem, and in a representation of the Crucifixion, in the Church of St. George, at Venice. A miniature resembling that of the poet Chaucer is to be seen on the surface of a small stone in the British Museum.

We must not omit to remark, that the art of sculpture is of much more ancient[21] date than those of painting and of statuary in bronze; both of which commenced with Phidias, in the eighty-third Olympiad, or in other words, about three hundred and thirty-two years later. Indeed, it is said, that Phidias himself worked in marble, and that there is a Venus of his at Rome, a work of extraordinary beauty, in the buildings of Octavia.[22] A thing, however, that is universally admitted, is the fact that he was the instructor of Alcamenes,[23] the Athenian, one of the most famous among the sculptors. By this last artist, there are numerous statues in the temples at Athens; as also, without the walls there, the celebrated Venus, known as the Aphrodite ἐν κήποις,[24] a work to which Phidias himself, it is said, put the finishing hand. Another disciple also of Phidias was Agoracritus[25] of Paros, a great favourite with his master, on account of his extremely youthful age; and for which reason, it is said, Phidias gave his own name to many of that artist's works. The two pupils entering into a contest as to the superior execution of a statue of Venus, Alcamenes was successful; not that his work was superior, but because his fellow-citizens chose to give their suffrages in his favour in preference to a stranger. It was for this reason, it is said, that Agoracritus sold his statue, on the express condition that it should never be taken to Athens, and changed its name to that of Nemesis.[26] It was accordingly erected at Rhamnus,[27] a borough of Attica, and M. Varro has considered it superior to every other statue. There is also to be seen in

[21] See B. xxxv. c. 44.

[22] See B. xxxv. cc. 37, 40.

[23] See B. xxxiv. c. 19.

[24] "In the Gardens." A suburb of Athens, in which there was a temple of Venus, or Aphrodite Urania.

[25] He is mentioned also by Pausanias and Strabo.

[26] The Goddess of Retribution. Pausanias, B. i. c. 33, says that it was the work of Phidias, and that it was made of Parian marble, which the Persians had brought into Attica for the purpose of erecting a trophy. Strabo, however, in B. ix., says that it was the work of Agoracritus and Diodotus (an artist otherwise unknown), and that it was not at all inferior to the production of Phidias. Tzetzes again, Suidas, and Photius, say that it was the work of Phidias, and that it was presented by him to his favourite pupil, Agoracritus. Sillig rejects the story of the contest, and the decision by the suffrages of the Athenian people. Some modern writers have doubted also, whether a statue of Venus could be modified so as to represent Nemesis; but not with sufficient reason, Sillig thinks.

[27] See B. iv. c. 11.

the Temple of the Great Mother, in the same city, another work[28] by Agoracritus.

Among all nations which the fame of the Olympian Jupiter has reached, Phidias is looked upon, beyond all doubt, as the most famous of artists: but to let those who have never even seen his works, know how deservedly he is esteemed, we will take this opportunity of adducing a few slight proofs of the genius which he displayed. In doing this, we shall not appeal to the beauty of his Olympian Jupiter, nor yet to the vast proportions of his Athenian Minerva, six and twenty cubits in height, and composed of ivory and gold; but it is to the shield of this last statue that we shall draw attention; upon the convex face of which he has chased a combat of the Amazons, while, upon the concave side of it, he has represented the battle between the Gods and the Giants. Upon the sandals again, we see the wars of the Lapithæ and Centaurs, so careful has he been to fill every smallest portion of his work with some proof or other of his artistic skill. To the story chased upon the pedestal of the statue, the name of the "Birth of Pandora"[29] has been given; and the figures of new-born[30] gods to be seen upon it are no less than twenty in number. The figure of Victory, in particular, is most admirable, and connoisseurs are greatly struck with the serpent and the sphinx in bronze lying beneath the point of the spear. Let thus much be said incidentally in reference to an artist who can never be sufficiently praised; if only to let it be understood that the richness of his genius was always equal to itself, even in the very smallest details.

When speaking[31] of the statuaries, we have already given the period at which Praxiteles flourished; an artist, who, in the glory which he acquired by his works in marble, surpassed even himself. There are some works of his in the Ceramicus[32] at Athens; but, superior to all the statues, not only of Praxiteles, but of any other artist that ever existed, is his Cnidian Venus; for the inspection of which, many persons before now have purposely undertaken a voyage to

[28] A statue, Sillig supposes, of the goddess Cybele.

[29] "Pandoras Genesis."

[30] Sillig is of opinion that this passage is corrupt, and is inclined to think, with Panofka, that the reading should be "nascenti adstantes,"—gods "standing by the new-born" Pandora.

[31] In B. xxxiv. c. 19.

[32] See B. xxxv. c. 45.

Cnidos. The artist made two statues of the goddess, and offered them both for sale: one of them was represented with drapery,[33] and for this reason was preferred[34] by the people of Cos, who had the choice; the second was offered them at the same price, but, on the grounds of propriety and modesty, they thought fit to choose the other. Upon this, the Cnidians purchased the rejected statue,[35] and immensely superior has it always been held in general estimation. At a later period, King Nicomedes wished to purchase this statue of the Cnidians, and made them an offer to pay off the whole of their public debt, which was very large. They preferred, however, to submit to any extremity rather than part with it; and with good reason, for by this statue Praxiteles has perpetuated the glory of Cnidos. The little temple in which it, is placed is open on all sides, so that the beauties[36] of the statue admit of

[33] "Velatà specie." There has been much discussion about the meaning of these words; and Sillig is of opinion that the figure was represented draped in a garment, which, while it seemed designed to hide the person, really exposed it to view. This dress would not improbably recommend it additionally to the inhabitants of Cos, who were skilled in making the *Coæ vestes*, garments which, while they covered the body, revealed its naked charms. See further mention of them in B. ix. c. 26.

[34] Visconti thinks that a statue still preserved in the Royal Museum at Paris, is a copy of the Coan Venus. It has, however, a figure of Cupid associated with it, which, as Sillig observes, militates against the supposition.

[35] The ancient writers abound in praises of this wonderful statue. Lucian, however, has given the most complete and artistic description of it. It was supposed by the ancients, to represent Venus as standing before Paris, when he awarded to her the prize of beauty; but it has been well remarked, that the drapery in the right hand, and the vase by the side of the figure, indicate that she has either just left or is about to enter the bath. The artist modelled it from Phryne, a courtesan or hetæra of Athens, of whom he was greatly enamoured. It was ultimately carried to Constantinople, where it perished by fire in the reign of Justinian. It is doubtful whether there are any copies of it in existence. There is, however, a so-called copy in the gardens of the Vatican, and another in the Glyptothek, at Munich. A Venus in the Museo Pio-Clementino, at Rome, is considered by Visconti and others to have been a copy of the Cnidian Venus, with the addition of drapery. It is supposed that Cleomenes, in making the Venus de Medici, imitated the Cnidian Venus in some degree.

[36] There are numerous Epigrams in reference to this statue in the Greek Anthology; the most striking line in any of which is the beautiful Pentameter:

Φεῦ! φεῦ! πῶυ γυμνὴν εἶδε με Πραξιτέλης;
"Alas! where has Praxiteles me naked seen?"

being seen from every point of view; an arrangement which was favoured by the goddess herself, it is generally believed. Indeed, from whatever point it is viewed, its execution is equally worthy of admiration. A certain individual, it is said, became enamoured of this statue, and, concealing himself in the temple during the night, gratified his lustful passion upon it, traces of which are to be seen in a stain left upon the marble.[37]

There are also at Cnidos some other statues in marble, the productions of illustrious artists; a Father Liber[38] by Bryaxis,[39] another by Scopas,[40] and a Minerva by the same hand: indeed, there is no greater proof of the supreme excellence of the Venus of Praxiteles than the fact that, amid such productions as these, it is the only one that we generally find noticed. By Praxiteles, too, there is a Cupid, a statue which occasioned[41] one of the charges brought by Cicero against Verres, and for the sake of seeing which persons used to visit Thespiæ: at the present day, it is to be seen in the Schools[42] of Octavia. By the same artist there is also another Cupid, without drapery, at Parium, a colony of the Propontis; equal to the Cnidian Venus in the fineness of its execution, and said to have been the object of a similar outrage. For one Alcetas, a Rhodian, becoming deeply enamoured of it, left upon the marble similar traces of the violence of his passion.

At Rome there are, by Praxiteles, a Flora, a Triptolemus, and a Ceres, in the Gardens of Servilius; statues of Good Success[43] and Good Fortune, in the Capitol; as also some Mænades,[44] and figures known as Thyiades[45] and Caryatides;[46]

[37] Lucian, Valerius Maximus, and Athenæus, tell the same improbable story, borrowing it from Posidippus the historian. [38] Bacchus.

[39] See B. xxxiv. c. 19. [40] See B. xxxiv. c. 19.

[41] Pliny is mistaken here: for in the time of Cicero, as we find in Verr. 4, 2, 4, the Thespian Cupid was still at Thespiæ, in Bœotia, where it had been dedicated by Phryne, and was not removed to Rome till the time of the emperors. It was the Parian Cupid, originally made for the people of Parium, that, after coming into the possession of Heius, a rich Sicilian, was forcibly taken from him by Verres.

[42] Where it was destroyed by fire in the reign of Titus. See B. xxxiv. c. 37. [43] See B. xxxiv. c. 19.

[44] Frantic Bacchantes. [45] Sacrificing Bacchantes.

[46] The name given in architecture to figures of females employed as columns in edifices. The Spartans, on taking the city of Carya, in Laconia, massacred the male inhabitants, and condemned the females to the

some Sileni,[47] to be seen in the memorial buildings of Asinius Pollio, and statues of Apollo and Neptune.

Cephisodotus,[48] the son of Praxiteles, inherited his father's talent. There is, by him, at Pergamus, a splendid Group[49] of Wrestlers, a work that has been highly praised, and in which the fingers have all the appearance of being impressed upon real flesh rather than upon marble. At Rome there are by him, a Latona, in the Temple of the Palatium; a Venus, in the buildings that are memorials of Asinius Pollio; and an Æsculapius, and a Diana, in the Temple of Juno situate within the Porticos of Octavia.

Scopas[50] rivals these artists in fame: there are by him, a Venus[51] and a Pothos,[52] statues which are venerated at Samothrace with the most august ceremonials. He was also the sculptor of the Palatine Apollo; a Vesta seated, in the Gardens of Servilius, and represented with two Bends[53] around her, a work that has been highly praised; two similar Bends, to be seen upon the buildings of Asinius Pollio; and some figures of Canephori[54] in the same place. But the most highly esteemed of all his works, are those in the Temple erected by Cneius Domitius,[55] in the Flaminian Circus; a figure of Neptune himself, a Thetis and Achilles, Nereids seated upon dolphins, cetaceous fishes, and[56] sea-horses,[57] Tritons, the train of Phor-

most bitter servitude, as "hewers of wood and drawers of water." Hence the memorials of their servitude thus perpetuated in architecture.

[47] Or companions of Bacchus. See B. XXXV. c. 36.

[48] See B. XXXIV. c. 19. [49] "Symplegma."

[50] Also mentioned in B. XXXIV. c. 19.

[51] Pausanias, B. I., speaks of *three* figures sculptured by Scopas; Erôs, Himeros, and Pothos. It is doubtful, however, whether they are identical with those here spoken of.

[52] Or "Desire." The name of "Phaëthon" is added in most of the editions, but Sillig rejects it as either a gloss, or a corruption of some other name.

[53] "Campteras." This, which is probably the true reading, has been restored by Sillig from the Bamberg MS. The καμπτῆρ was the bend or turning, round the goal in the race-course for chariots; and as Vesta was symbolical of the earth, these figures, Sillig thinks, probably represented the poles, as goals of the sun's course.

[54] Figures of Virgins, carrying on their heads baskets filled with objects consecrated to Minerva.

[55] Dedicated to Neptune by Cneius Domitius Ahenobarbus, in the Ninth Region of the City.

[56] "Et" appears a preferable reading to the "aut" of the Bamberg MS.

[57] "Hippocampi." It is pretty clear that by this name he cannot mean

cus,[58] whales,[59] and numerous other sea-monsters, all by the same hand; an admirable piece of workmanship, even if it had taken a whole life to complete it. In addition to the works by him already mentioned, and others of the existence of which we are ignorant, there is still to be seen a colossal Mars of his, seated, in the Temple erected by Brutus Callæcus,[60] also in the Flaminian Circus; as also, a naked Venus, of anterior date to that by Praxiteles, and a production that would be quite sufficient to establish the renown of any other place.

At Rome, it is true, it is quite lost sight of amid such a vast multitude of similar works of art: and then besides, the inattention to these matters that is induced by such vast numbers of duties and so many items of business, quite precludes the generality of persons from devoting their thoughts to the subject. For, in fact, the admiration that is due to this art, not only demands an abundance of leisure, but requires that profound silence should reign upon the spot. Hence it is, that the artist is now forgotten, who executed the statue of Venus that was dedicated by the Emperor Vespasianus in his Temple of Peace, a work well worthy of the high repute of ancient times. With reference, too, to the Dying Children of Niobe, in the Temple of the Sosian[61] Apollo, there is an equal degree of uncertainty, whether it is the work[62] of Scopas or of Praxiteles. So, too, as to the Father Janus, a work that was brought from Egypt and dedicated in his Temple[63] by Augustus, it is a question by which of these two artists[64] it was made: at the present day, however, it is quite hidden from us by the

the small fish so called in B. xxxii. cc. 20, 23, 27, 30, 35, 38, 50, and 53, and alluded to in B. ix. c. 1; the Syngnathus hippocampus of Linnæus.

[58] A sea-divinity.

[59] "Pistrices." See B. ix. cc. 2, 3, 15.

[60] Conqueror of Callæcia. See B. iv. c. 35. This temple was dedicated to Mars.

[61] A statue of Apollo, Hardouin thinks, which was originally brought from Seleucia by C. Sosius, the quæstor of M. Lepidus. See B. xiii. c. 5.

[62] Ajasson says that this work is identical with the group representing Niobe and her children, now at Florence. It was found in 1535, or, as some say, 1583, near the Lateran Gate at Rome; upon which, it was bought by Ferdinand de Medici, and placed in the park of one of his villas. More recently, the Emperor Leopold purchased it, and had it removed to Florence.

[63] The Temple of Janus, in the Eighth Region of the City.

[64] Probably by neither of them, as Janus was essentially an Italian Divinity. See Ovid's Fasti, B. I.

quantity of gold that covers it. The same question, too, arises with reference to the Cupid brandishing a Thunderbolt, now to be seen in the Curia of Octavia: the only thing, in fact, that is affirmed with any degree of certainty respecting it, is, that it is a likeness of Alcibiades, who was the handsomest man of his day. There are, too, in the Schools[65] of Octavia, many other highly attractive works, the authors of which are now unknown: four Satyrs, for example, one of which carries in his arms a Father Liber, robed in the palla;[66] another similarly supports the Goddess Libera;[67] a third is pacifying a child who is crying; and a fourth is giving a child some water to drink, from a cup; two Zephyrs also, who agitate their flowing drapery with their breath. No less is the uncertainty that prevails as to the authors of the statues now to be seen in the Septa;[68] an Olympus[69] and Pan, and a Charon and Achilles;[70] and yet their high reputation has caused them to be deemed valuable enough for their keepers to be made answerable for their safety at the cost of their lives.

Scopas had for rivals and contemporaries, Bryaxis,[71] Timotheus,[72] and Leochares,[73] artists whom we are bound to mention together, from the fact that they worked together at the Mausoleum; such being the name of the tomb that was erected by his wife Artemisia in honour of Mausolus, a petty king of Caria, who died in the second year of the hundred and seventh Olympiad. It was through the exertions of these artists more particularly, that this work came to be reckoned one of the Seven Wonders of the World.[74] The circumference[75] of this building is, in all, four hundred and forty feet

[65] See B. xxxv. c. 37.

[66] A large upper garment, reaching to the ankles.

[67] Both Liber and Libera were originally Italian Divinities, who presided over the vine and the fields. Pliny, however, always identifies the former with Bacchus, and other writers the latter with Persephone, or Proserpina, the daughter of Demeter or Ceres. Ovid, Fasti, B. iii. l. 512, calls Ariadne, "Libera."

[68] See B. xvi. c. 76.

[69] A disciple of Marsyas, and a famous player on the flute. See p. 319.

[70] All these figures have been found copied in the frescoes of Herculaneum.

[71] See B. xxxiv. c. 19.

[72] It is doubtful whether this is the same artist that is mentioned in B. xxxiv. c. 19.

[73] See B. xxxiv. c. 19.

[74] Hence, too, the use of the word "Mausoleum," as meaning a splendid tomb.

[75] He means, probably, the extent of the colonnade or screen which surrounded it. The Mausoleum was erected at Halicarnassus.

and the breadth from north to south sixty-three, the two fronts[76] being not so wide in extent. It is twenty-five cubits in height, and is surrounded with six-and-thirty columns, the outer circumference being known as the "Pteron."[77] The east side was sculptured by Scopas, the north by Bryaxis, the south by Timotheus, and the west by Leochares; but, before their task was completed, Queen Artemisia died.[78] They did not leave their work, however, until it was finished, considering that it was at once a memorial of their own fame and of the sculptor's art: and, to this day even, it is undecided which of them has excelled. A fifth artist also took part in the work; for above the Pteron there is a pyramid erected, equal in height to the building below, and formed of four and twenty steps, which gradually taper upwards towards the summit; a platform, crowned with a representation of a four-horse chariot by Pythis. This addition makes the total height of the work one hundred and forty feet.[80]

There is at Rome, by Timotheus, a Diana, in the Temple of Apollo in the Palatium, the head of which has been replaced by Avianius Evander.[81] A Hercules, too, by Menestratus,[82] is greatly admired; and there is a Hecate of his at Ephesus, in

[76] Facing east and west.

[77] Or "wing." The "ptera," or "pteromata," properly speaking, were the two wings at the sides of a building. See Note 80 below.

[78] She only survived her husband two years.

[80] Another reading, and perhaps a preferable one, is "one hundred" feet. The account given by Pliny is very confused, and Littré has taken some pains to explain the construction of this building. He is of opinion that in the first place, a quadrangular main building was erected, 63 feet in length on the north and south, the breadth of the east and west faces being shorter, some 42 feet perhaps. Secondly, that there was a screen of 36 columns surrounding the main building, and 411 feet in circumference. (He adopts this reading in preference to the 440 feet of the Bamberg MS.) That the longer sides of this screen were 113.25 feet in extent, and the shorter 92.125 feet. That between the main building and this screen, or colonnade, there was an interval of 25.125 feet. Thirdly, that the colonnade and the main buildings were united by a vaulted roof, and that this union formed the "Pteron." Fourthly, that rising from this Pteron, there was a quadrangular *truncated* pyramid, formed of twenty-four steps, and surmounted with a chariot of marble. This would allow, speaking in round numbers, 37½ feet for the height of the main body of the building, 37½ feet for the pyramid, and twenty-five feet for the height of the chariot and the figure which it doubtless contained.

[81] Supposed to be the person alluded to by Horace, 1 Sat. 3, 90.

[82] He is mentioned also by Tatian, and is supposed to have lived about the time of Alexander the Great.

the Temple of Diana there, behind the sanctuary. The keepers of the temple recommend persons, when viewing it, to be careful of their eyes, so remarkably radiant is the marble. No less esteemed, too, are the statues of the Graces,[83] in the Propylæum[84] at Athens; the workmanship of Socrates the sculptor, a different person from the painter[85] of that name, though identical with him in the opinion of some. As to Myron,[86] who is so highly praised for his works in bronze, there is by him at Smyrna, An Old Woman Intoxicated, a work that is held in high estimation.

Asinius Pollio, a man of a warm and ardent temperament, was determined that the buildings which he erected as memorials of himself should be made as attractive as possible; for here we see groups representing, Nymphs carried off by Centaurs, a work of Arcesilas:[87] the Thespiades,[88] by Cleomenes:[89] Oceanus and Jupiter, by Heniochus:[90] the Appiades,[91] by Stephanus:[92] Hermerotes,[93] by Tauriscus, not the chaser in silver, already[94] mentioned, but a native of Tralles:[95] a Jupiter Hospitalis[96] by Papylus, a pupil of Praxiteles: Zethus and Amphion, with Dirce, the Bull,[97] and the halter, all sculptured from a single block of

[83] "Charites." [84] "Porch," or "Vestibule" of the Citadel at Athens.

[85] Mentioned in B. xxxv. c. 40. The present Socrates is identified by Pausanias, B. i. c. 22, and B. ix. c. 25, and by Diogenes Laertius, B. ii. c. 19, with the great Athenian philosopher of that name, son of the statuary Sophroniscus: but the question as to his identity is very doubtful. Diogenes Laertius adds, that whereas artists had previously represented the Graces naked, Socrates sculptured them with drapery.

[86] See B. xxxiv. c. 19. [87] See B. xxxv. c. 45.

[88] Or Muses of Thespiæ, in Bœotia.

[89] There have been several distinguished sculptors, all of this name. A statuary, son of Apollodorus the Athenian, made the celebrated Venus de Medici. It is the opinion of Visconti and Thiersch, that the artist here mentioned flourished before the destruction of Corinth.

[90] This name is doubtful, and nothing is known relative to the artist.

[91] "Hippiades" is the old reading, which Dalechamps considers to mean "Amazons." The Appiades were Nymphs of the Appian Spring, near the temple of Venus Genetrix, in the Forum of Julius Cæsar. See Ovid, Art. Am. B. i. l. 81, and B. iii. l. 451; and Rem. Am. l. 659.

[92] From an inscription on a statue still extant, he is supposed to have been a pupil of Pasiteles, and consequently to have flourished about B.C. 25.

[93] Figures in which the form and attributes of Hermes, or Mercury, and Eros, or Cupid, were combined, Hardouin thinks.

[94] In B. xxxiii. c. 55. [95] In Caria: see B. v. c. 29.

[96] Or "Xenias"—"Presiding over hospitality," or "Protector of strangers."

[97] The story was, that Zethus and Amphion bound Dirce, queen of

marble, the work of Apollonius and Tauriscus, and brought to Rome from Rhodes. These two artists made it a sort of rivalry as to their parentage, for they declared that, although Apollodorus was their natural progenitor, Menecrates[98] would appear to have been their father. In the same place, too, there is a Father Liber,[99] by Eutychides,[1] highly praised. Near the Portico of Octavia, there is an Apollo, by Philiscus[2] of Rhodes, placed in the Temple of that God; a Latona and Diana also; the Nine Muses; and another Apollo, without drapery. The Apollo holding the Lyre, in the same temple, was executed by Timarchides.[3] In the Temple of Juno, within the Porticos of Octavia, there is a figure of that goddess, executed by Dionysius,[4] and another by Polycles,[5] as also other statues by Praxiteles.[6] This Polycles, too, in conjunction with Dionysius,[7] the son of Timarchides, made the statue of Jupiter, which is to be seen in the adjoining temple.[8] The figures of Pan and Olympus Wrestling, in the same place, are by Heliodorus;[9] and they are considered to be the next finest group[10] of this nature in all the world. The same artist also executed a Venus at the Bath, and Polycharmus another Venus, in an erect[11] posture.

By the honourable place which the work of Lysias occupies, we may see in what high esteem it was held by the late Emperor Augustus, who consecrated it in honour of his father Octavius, in the Palatium, placing it on an arch within a small

Thebes, to the flanks of an infuriated bull, in revenge for the death of their mother, Antiope, who had been similarly slain by her. This group is supposed still to exist, in part, in the "Farnese Bull," which has been in a great measure restored. Winckelmann is of opinion, however, that the Farnese Bull is of anterior date to that here mentioned, and that it belongs to the school of Lysippus.

[98] Probably a native of Rhodes. No further particulars of this artist appear to be known.

[99] Bacchus.

[1] See B. xxxiv. c. 19.

[2] A different person, probably, from the painter, mentioned in B. xxxv. c. 40.

[3] See B. xxxiv. c. 19.

[4] Supposed by Sillig not to be the early statuary of Argos of that name, who flourished, probably, B C. 476.

[5] See B. xxxiv. c. 19.

[6] "Pasiteles" would appear to be a preferable reading; for Pliny would surely have devoted more space to a description of these works of Praxiteles.

[7] The same artist that is previously mentioned, Sillig thinks.

[8] Of Jupiter.

[9] See B. xxxiv. c. 19.

[10] "Symplegma." See Note 49, page 314.

[11] The first being in a stooping posture, washing herself.

temple, adorned with columns: it is the figure of a four-horse chariot, with an Apollo and Diana, all sculptured from a single block. I find it stated, also, that the Apollo by Calamis, the chaser already[12] mentioned, the Pugilists by Dercylides, and the statue of Callisthenes the historian, by Amphistratus,[13] all of them now in the Gardens of Servilius, are works highly esteemed.

Beyond these, there are not many sculptors of high repute; for, in the case of several works of very great excellence, the number of artists that have been engaged upon them has proved a considerable obstacle to the fame of each, no individual being able to engross the whole of the credit, and it being impossible to award it in due proportion to the names of the several artists combined. Such is the case with the Laocoön, for example, in the palace of the Emperor Titus, a work that may be looked upon as preferable to any other production of the art of painting or of statuary. It is sculptured from a single block, both the main figure as well as the children, and the serpents with their marvellous folds. This group was made in concert by three most eminent artists,[14] Agesander, Polydorus, and Athenodorus, natives of Rhodes. In similar manner also, the palaces of the Cæsars, in the Palatium, have been filled with most splendid statuary, the work of Craterus, in conjunction

[12] In B. xxxiii. c. 55, and B. xxxiv. c. 18.

[13] A sculptor of the age of Alexander the Great. He is also mentioned by Tatian. For an account of Callisthenes, see end of B. xii.

[14] Winckelmann supposes that these artists lived in the time of Lysippus; but, as may be discovered from an attentive examination of the present passage, Lessing and Thiersch are probably right in considering them to have been contemporaries of the Emperor Titus. This group is generally supposed to have been identical with the Laocoön still to be seen in the Court of the Belvedere, in the Vatican at Rome; having been found, in 1506, in a vault beneath the spot known as the Place *de Sette Sale*, by Felix de Fredi, who surrendered it, in consideration of a pension, to Pope Julius II. The group, however, is not made of a *single* block, which has caused some to doubt its identity: but it is not improbable, that when originally made, its joints were not perceptible to a common observer. The spot, too, where it was found was actually part of the palace of Titus. It is most probable that the artists had the beautiful episode of Laocoön in view, as penned by Virgil, Æn. B. II.; though Ajasson doubts whether they derived any inspiration from it. Laocoön, in the sublime expression of his countenance, is doing any thing, he says, but—

"Clamores simul horrendos ad sidera tollit."

"Sending dire outcries to the stars of heaven."

with Pythodorus, of Polydeuces with Hermoläus, and of another Pythodorus with Artemon; some of the statues, also, are by Aphrodisius of Tralles, who worked alone. The Pantheon of Agrippa has been decorated by Diogenes of Athens, and the Caryatides, by him, which form the columns of that temple, are looked upon as master-pieces of excellence: the same, too, with the statues that are placed upon the roof, though, in consequence of the height, they have not had an opportunity of being so well appreciated.

Without glory, and excluded from every temple, is the statue of Hercules,[15] in honour of whom the Carthaginians were accustomed to sacrifice human victims every year: it stands upon the ground before the entrance of the Portico of the Nations.[16] There were erected, too, near the Temple of Felicity, the statues of the Thespian[17] Muses; of one of which, according to Varro, Junius Pisciculus, a Roman of equestrian rank, became enamoured. Pasiteles,[18] too, speaks in terms of high admiration of them, the artist who wrote five books on the most celebrated works throughout the world. Born upon the Grecian[19] shores of Italy, and presented with the Roman citizenship granted to the cities of those parts, Pasiteles constructed the ivory statue of Jupiter which is now in the Temple of Metellus,[20] on the road to the Campus Martius. It so happened, that being one day at the Docks,[21] where there were some wild beasts from Africa, while he was viewing through the bars of a cage a lion which he was engaged in drawing, a panther made its escape from another cage, to the no small danger of this most careful artist. He executed many other works, it is said, but we do not find the names of them specifically mentioned.

[15] This was an ancient and hideous idol, probably. Plato, Diodorus Siculus, Plautus, Lactantius, Arnobius, and Isidorus, all concur in saying that it was Saturn in honour of whom human victims were immolated.

[16] "Ad Nationes." A portico built by Augustus, and adorned with statues representing various nations.

[17] "Thespiades." They were brought by Mummius from Thespiæ, in Bœotia. See B. xxxiv. c. 19, and Note 88, above.

[18] See B. xxxv. c. 45, and end of B. xxxiii.

[19] Magna Græcia.

[20] Built by Metellus Macedonicus.

[21] "Navalia." This was the name of certain docks at Rome, where ships were built, laid up, and refitted. They were attached to the Emporium, without the Trigeminian Gate, and were connected with the Tiber.

Arcesilaüs,[22] also, is an artist highly extolled by Varro; who states that he had in his possession a Lioness in marble of his, and Winged Cupids playing with it, some holding it with cords, and others making it drink from a horn, the whole sculptured from a single block: he says, also, that the fourteen figures around the Theatre of Pompeius,[23] representing different Nations, are the work of Coponius.

I find it stated that Canachus,[24] an artist highly praised among the statuaries in bronze, executed some works also in marble. Saurus,[25] too, and Batrachus must not be forgotten, Lacedæmonians by birth, who built the temples[26] enclosed by the Porticos of Octavia. Some are of opinion that these artists were very wealthy men, and that they erected these buildings at their own expense, expecting to be allowed to inscribe their names thereon; but that, this indulgence being refused them, they adopted another method of attaining their object. At all events, there are still to be seen, at the present day, on the spirals[27] of the columns, the figures of a lizard and a frog,[28] emblematical of their names. In the Temple of Jupiter by the same artists, the paintings, as well as all the other ornaments, bear reference to the worship of a goddess. The[29] fact is, that when the temple of Juno was completed, the porters, as it is said, who were entrusted with the carriage of the statues, made an exchange of them; and, on religious grounds, the mistake was left uncorrected, from an impression that it had been by the intervention of the divinities themselves, that this seat of worship had been thus shared between them. Hence it is that we see in the Temple of Juno, also, the ornaments which properly pertain to the worship of Jupiter.

[22] See B. xxxv. c. 45.

[23] In the Ninth Region of the City. These figures are mentioned also by Suetonius, C. 46.

[24] See B. xxxiv. c. 19.

[25] A singular combination of names, as they mean "Lizard" and "Frog." No further particulars of these artists are known, but they appear to have lived in the time of Pompey.

[26] Of Juno and Apollo.

[27] "Spiræ." See Chapter 56 of this Book.

[28] Winckelmann, in Vol. II. p. 269, of the *Monumenti Antichi ined.*, gives the chapiter of an Ionic column, belonging to the church of San Lorenzo, without the walls, at Rome, on the volutes of which are represented a frog and a lizard.

[29] The old reading is adopted here, in preference to that of the Bamberg MS., which does not appear reconcileable to sense in saying that *this* temple of Jupiter was originally made in honour of Juno; for in *such case* there could be no mistake in introducing the emblems of female worship.

Some minute works in marble have also gained reputation for their artists: by Myrmecides,[30] there was a four-horse chariot, so small that it could be covered, driver and all, by the wings of a fly; and by Callicrates,[31] some ants, in marble, the feet and other limbs of which were so fine as to escape the sight.

### CHAP. 5. (6.)—AT WHAT PERIOD MARBLE WAS FIRST USED IN BUILDINGS.

This must suffice for the sculptors in marble, and the works that have gained the highest repute; with reference to which subject it occurs to me to remark, that spotted marbles were not then in fashion. In making their statues, these artists used the marble of Thasos also,[32] one of the Cyclades, and of Lesbos, this last being rather more livid than the other. The poet Menander, in fact, who was a very careful enquirer into all matters of luxury, is the first who has spoken, and that but rarely, of variegated marbles, and, indeed, of the employment of marble in general. Columns of this material were at first employed in temples, not on grounds of superior elegance, (for that was not thought of, as yet), but because no material could be found of a more substantial nature. It was under these circumstances, that the Temple[33] of the Olympian Jupiter was commenced at Athens, the columns of which were brought by Sylla to Rome, for the buildings in the Capitol.

Still, however, there had been a distinction drawn between ordinary stone and marble, in the days of Homer even. The poet speaks in one passage of a person[34] being struck down with a huge mass of marble; but that is all; and when he describes the abodes of royalty adorned with every elegance, besides brass, gold, electrum,[35] and silver, he only mentions ivory. Variegated marbles, in my opinion, were first discovered in the quarries of Chios, when the inhabitants were building the walls of their city; a circumstance which gave rise to a facetious repartee on the part of M. Cicero. It being the practice with them to show these walls to everybody, as

[30] A sculptor of Miletus. See B. vii. c. 21.
[31] A Lacedæmonian artist. See B. vii. c. 21.
[32] As well as that of Paros.
[33] Only completed in the time of the Emperor Adrian.
[34] Cebriones, the charioteer of Hector. See Il. B. xvi. l. 735.
[35] See B. xxxiii. c. 23.

something magnificent; "I should admire them much more," said he, "if you had built them of the stone used at Tibur."[36] And, by Hercules! the art of painting[37] never would have been held in such esteem, or, indeed, in any esteem at all, if variegated marbles had been held in admiration.

### CHAP. 6.—WHO WERE THE FIRST TO CUT MARBLE INTO SLABS, AND AT WHAT PERIOD.

I am not sure whether the art of cutting marble into slabs, is not an invention for which we are indebted to the people of Caria. The most ancient instance of this practice, so far as I know of, is found in the palace of Mausolus, at Halicarnassus, the walls of which, in brick, are covered with marble of Proconnesus. Mausolus died in the second year of the hundred and seventh[39] Olympiad, being the year of Rome, 403.

### CHAP. 7.—WHO WAS THE FIRST TO ENCRUST THE WALLS OF HOUSES AT ROME WITH MARBLE.

The first person at Rome who covered the whole of the walls of his house with marble, according to Cornelius Nepos,[40] was Mamurra,[41] who dwelt upon the Cælian Hill, a member of the equestrian order, and a native of Formiæ, who had been præfect of the engineers under C. Cæsar in Gaul. Such was the individual, that nothing may be wanting to the indignity of the example, who first adopted this practice; the same Mamurra, in fact, who has been so torn to pieces in the verses of Catullus of Verona. Indeed, his own house proclaimed more loudly than Catullus could proclaim it, that he had come into possession of all that Gallia Comata had had to possess.

[36] This is generally explained as meaning ordinary stone, but covered with elaborate paintings, as was then the practice in the magnificent villas that were built at Tibur, the modern Tivoli. See, however, Chapter 48, and Note 36.

[37] As applied to the decorations of the walls of houses.

[39] This date does not agree with that given to Scopas, one of the artists who worked at the Mausoleum, in the early part of B. xxxiv. c. 19. Sillig, however, is inclined to think that there were *two* artists named Scopas, and would thus account for the diversity of about seventy years between the dates.

[40] See end of B. ii.

[41] Owing to the liberality of Cæsar, he amassed great riches. He is repeatedly attacked by Catullus (Carm. xxix., xliii., lvii.), and accused of extortion, and other vices. Horace also speaks of him in terms of ridicule, I Sat. 5, 37.

For Nepos adds, as well, that he was the first to have all the columns of his house made of nothing but solid marble, and that, too, marble of Carystus[42] or of Luna.[43]

CHAP. 8.—AT WHAT PERIOD THE VARIOUS KINDS OF MARBLE CAME INTO USE AT ROME.

M. Lepidus, who was consul with Q. Catulus, was the first to have the lintels of his house made of Numidian marble, a thing for which he was greatly censured: he was consul in the year of Rome, 676. This is the earliest instance that I can find of the introduction of Numidian marble; not in the form of pillars, however, or of slabs, as was the case with the marble of Carystus, above-mentioned, but in blocks, and that too, for the comparatively ignoble purpose of making the thresholds of doors. Four years after this Lepidus, L. Lucullus was consul; the same person who gave its name, it is very evident, to the Lucullan marble; for, taking a great fancy to it, he introduced it at Rome. While other kinds of marble are valued for their spots or their colours, this marble is entirely black.[45] It is found in the island of Melos,[46] and is pretty nearly the only marble that has taken its name from the person who first introduced it. Among these personages, Scaurus, in my opinion, was the first to build a theatre with walls of marble: but whether they were only coated with slabs of marble or were made of solid blocks highly polished, such as we now see in the Temple of Jupiter Tonans,[47] in the Capitol, I cannot exactly say: for, up to this period, I cannot find any vestiges of the use of marble slabs in Italy.

CHAP. 9.—THE METHOD OF CUTTING MARBLE INTO SLABS. THE SAND USED IN CUTTING MARBLE.

But whoever it was that first invented the art of thus cutting marble, and so multiplying the appliances of luxury, he displayed considerable ingenuity, though to little purpose. This

[42] See B. iv. c. 21. [43] See Chapter 4 of this Book.

[45] The black marbles, Ajasson remarks, are comparatively rare. He is of opinion that the colour of the Lucullan marble was the *noir antique* of the French, and says that it is to be found at Bergamo, Carrara, Prato in Tuscany, and near Spa in Belgium.

[46] "Chios" is another reading.

[47] "Thundering Jupiter." This temple was built by Augustus.

division, though apparently effected by the aid of iron, is in reality effected by sand; the saw acting only by pressing upon the sand within a very fine cleft in the stone, as it is moved to and fro.

The[48] sand of Æthiopia is the most highly esteemed for this purpose; for, to add to the trouble that is entailed, we have to send to Æthiopia for the purpose of preparing our marble—aye, and as far as India even; whereas in former times, the severity of the Roman manners thought it beneath them to repair thither in search of such costly things even as pearls! This Indian sand is held in the next highest degree of estimation, the Æthiopian being of a softer nature, and better adapted for dividing the stone without leaving any roughness on the surface; whereas the sand from India does not leave so smooth a face upon it. Still, however, for polishing marble, we find it recommended[49] to rub it with Indian sand calcined. The sand of Naxos has the same defect; as also that from Coptos, generally known as "Egyptian" sand.

The above were the several varieties of sand used by the ancients in dividing marble. More recently, a sand has been discovered that is equally approved of for this purpose; in a certain creek of the Adriatic Sea, which is left dry at low water only; a thing that renders it not very easy to be found. At the present day, however, the fraudulent tendencies of our workers in marble have emboldened them to use any kind of river-sand for the purpose; a mischief which very few employers rightly appreciate. For, the coarser the sand, the wider is the division made in the stone, the greater the quantity of material consumed, and the more extensive the labour required for polishing the rough surface that is left; a result of which is that the slabs lose so much more in thickness. For giving the last polish to marble,[50] Thebaic stone[51] is considered well adapted, as also porous stone, or pumice, powdered fine.

[48] Ajasson says that his remarks on the choice of the sand for this purpose, are very judicious.

[49] A recommendation worse than useless, Ajasson remarks.

[50] For this purpose, at the present day, granular corindon, or yellow emery, is used, as also a mixture composed of the oxides of lead and of tin; the substance being repeatedly moistened when applied.

[51] See Chapters 13 and 43 of this Book.

### CHAP. 10. (7.)—STONE OF NAXOS. STONE OF ARMENIA.

For polishing marble statues, as also for cutting and giving a polish to precious stones, the preference was long given to the stone of Naxos,[52] such being the name of a kind of touch-stone[53] that is found in the Isle of Cyprus. More recently, however, the stones imported from Armenia for this purpose have displaced those of Naxos.

### CHAP 11.—THE MARBLES OF ALEXANDRIA.

The marbles are too well known to make it necessary for me to enumerate their several colours and varieties; and, indeed, so numerous are they, that it would be no easy task to do so. For what place is there, in fact, that has not a marble of its own? In addition to which, in our description of the earth and its various peoples,[54] we have already made it our care to mention the more celebrated kinds of marble. Still, however, they are not all of them produced from quarries, but in many instances lie scattered just beneath the surface of the earth; some of them the most precious even, the green Lacedæmonian marble, for example, more brilliant in colour than any other; the Augustan also; and, more recently, the Tiberian; which were first discovered, in the reigns respectively of Augustus and Tiberius, in Egypt. These two marbles differ from ophites[55] in the circumstance that the latter is marked with streaks which resemble serpents[56] in appearance, whence its name. There is also this difference between the two marbles themselves, in the arrangement of their spots: the Augustan marble has them undulated and curling to a point; whereas in the Tiberian the streaks are white,[57] not involved, but lying wide asunder.

Of ophites, there are only some very small pillars known to have been made. There are two varieties of it, one white and soft, the other inclining to black, and hard. Both kinds, it is said, worn as an amulet, are a cure for head-ache, and for

[52] A city in Crete where the stone was prepared for use. [53] "Cotes."
[54] Books III. IV. V. and VI.
[55] The modern Ophite, both Noble, Serpentine, and Common.
[56] From the Greek ὄφις, a "serpent."
[57] This would appear to be a kind of Apatite, or Augustite, found in crystalline rocks.

wounds inflicted by serpents.[58] Some, too, recommend the white ophites as an amulet for phrenitis and lethargy. As a counter-poison to serpents, some persons speak more particularly in praise of the ophites that is known as "tephrias,"[59] from its ashy colour. There is also a marble known as "memphites," from the place[60] where it is found, and of a nature somewhat analogous to the precious stones. For medicinal purposes, it is triturated and applied in the form of a liniment, with vinegar, to such parts of the body as require cauterizing or incision; the flesh becoming quite benumbed, and thereby rendered insensible to pain.

Porphyrites,[61] which is another production of Egypt, is of a red colour: the kind that is mottled with white blotches is known as "leptospsephos."[62] The quarries there are able to furnish blocks[63] of any dimensions, however large. Vitrasius Pollio, who was steward[64] in Egypt for the Emperor Claudius, brought to Rome from Egypt some statues made of this stone; a novelty which was not very highly approved of, as no one has since followed his example. The Egyptians, too, have discovered in Æthiopia the stone known as "basanites;"[65] which in colour and hardness resembles iron, whence the name[66] that has been given to it. A larger block of it has never been known than the one forming the group which has been dedicated by the Emperor Vespasianus Augustus in the Temple of Peace. It represents the river Nilus with sixteen children sporting around it,[67] symbolical of the sixteen cubits, the extreme height[68] to which, in the most favourable seasons, that river should rise. It is stated, too, that in the Temple of Serapis at Thebes, there is a block not unlike it, which forms the statue of Memnon[69] there; remarkable, it is said, for

[58] A superstition, owing solely to the name and appearance of the stone.

[59] From the Greek τέφρα, "ashes." The *modern* Tephroite is a silicate of manganese.

[60] Memphis, in Egypt.

[61] A variety of the modern Porphyry, possibly; a compact feldspathic base, with crystals of feldspar. Ajasson refuses to identify it with porphyry, and considers it to be the stone called *Red antique*, of a deep uniform red, and of a very fine grain; which also was a production of Egypt.

[62] "Small stone."

[63] Of porphyrites.

[64] "Procurator."

[65] See B. xxxvi. c. 38. See also the Lydian stone, or touchstone, mentioned in B. xxxiii. c. 43.

[66] From Βάσανος, a "touchstone."

[67] Philostratus gives a short account of this group, and copies of it are to be seen in the Vatican, and in the grounds of the Tuileries.

[68] See B. v. c. 10.

[69] The Egyptians called it, not Memnon, but Amenophis, and it is sup-

emitting a sound each morning when first touched by the rays of the rising sun.

CHAP. 12.—ONYX AND ALABASTRITES; SIX REMEDIES.

Our forefathers imagined that onyx[70] was only to be found in the mountains of Arabia, and nowhere else; but Sudines[71] was aware that it is also found in Carmania.[72] Drinking-vessels were made of it at first, and then the feet of beds and chairs. Cornelius Nepos relates that great was the astonishment, when P. Lentulus Spinther exhibited amphoræ made of this material, as large as Chian wine-vessels in size; "and yet, five years after," says he, "I saw columns of this material, no less than two-and-thirty feet in height." At a more recent period again, some change took place[73] with reference to this stone; for four[74] small pillars of it were erected by Cornelius Balbus in his Theatre[75] as something quite marvellous: and I myself have seen thirty columns, of larger size, in the banquetting-room which Callistus[76] erected, the freedman of Claudius, so well known for the influence which he possessed.

(8.) This[76*] stone is called "alabastrites"[77] by some, and is hollowed out into vessels for holding unguents, it having the reputation of preserving them from corruption[78] better than anything else. In a calcined state, it is a good ingredient for

posed that it represented a monarch of the second dynasty. This is probably the statue still to be seen at Medinet Abou, on the Libyan side of the Nile, in a sitting posture, and at least 60 feet in height. The legs, arms, and other parts of the body are covered with inscriptions, which attest that, in the third century of the Christian era, the priests still practised upon the credulity of the devotees, by pretending that it emitted sounds. It may possibly have been erected for astronomical purposes, or for the mystic worship of the sun. The Greek name "Memnon" is supposed to have been derived from the Egyptian *Mei Amun*, "beloved of Ammon."

[70] Ajasson remarks that under this name the ancients meant, first, yellow calcareous Alabaster, and secondly, Chalcedony, unclassified.

[71] See end of the present Book. [72] See B. vi. cc. 27, 28, 32.

[73] "Variatum est."

[74] Ajasson thinks that these columns, in reality, were made, in both instances, of yellow jasper, or else yellow sardonyx, a compound of sard and chalcedony. [75] Erected A.U.C. 741. [76*] See B. xxxiii. c. 47.

[76*] The reading here is doubtful, and it is questionable whether he considers the two stones as identical.

[77] Probably calcareous Alabaster, Ajasson thinks. See B. xxxvii. c. 54.

[78] See B. xiii. c. 3.

plaisters.[79]. It is found in the vicinity of Thebes in Egypt and of Damascus in Syria, that of Damascus being whiter than the others. The most esteemed kind, however, is that of Carmania, the next being the produce of India, and then, those of Syria and Asia. The worst in quality is that of Cappadocia, it being utterly destitute of lustre. That which is of a honey colour is the most esteemed, covered with spots curling in whirls,[80] and not transparent. Alabastrites is considered defective, when it is of a white or horn colour, or approaching to glass in appearance.

CHAP. 13.—LYGDINUS; CORALLITIC STONE; STONE OF ALABANDA; STONE OF THEBAIS; STONE OF SYENE.

Little inferior to it for the preservation of unguents, in the opinion of many, is the stone, called "lygdinus,"[81] that is found in Paros, and never of a larger size than to admit of a dish or goblet being made of it. In former times, it was only imported from Arabia, being remarkable for its extreme whiteness.

Great value is placed also upon two other kinds of stone, of quite a contrary nature; corallitic[82] stone, found in Asia, in blocks not more than two cubits in thickness, and of a white somewhat approaching that of ivory, and in some degree resembling it; and Alabandic stone, which, on the other hand, is black, and is so called from the district[83] which produces it: though

[79] Plaster of Paris is made of gypsum or alabaster, heated and ground.

[80] A feature both of jasper and of sardonyx.

[81] By some persons it has been considered to be the same with the "lychnitis," or white marble, mentioned in Chapter 4 of this Book. Ajasson is of opinion that it has not been identified.

[82] Ajasson is in doubt whether this stone was really a marble or a gypsic alabaster. It received its name from the river Curalius or Coural, near which it was found; and it was also known as Sangaric marble. Ajasson thinks that the ancient milk-white marble, still found in Italy, and known to the dealers in antiquities as *Palombino*, may have been the "corallitic" stone. He also mentions the fine white marble known as *Grechetto*.

[83] See B. v. c. 29. Sulphuret of manganese is now known as Alabandine; it is black, but becomes of a tarnished brown on exposure to the air. It is not improbable that this manganese was used for colouring glass, and that in Chapter 66 of this Book Pliny again refers to manganese when speaking of a kind of "magnet" or load-stone. See Beckmann, Hist. Inv. Vol. II. pp. 237—8, *Bohn's Edition;* who thinks, that in the present passage Pliny is speaking of a kind of marble. It is the fact, however, that Pyrolusite, or grey ore of manganese, is used, at a

it is also to be found at Miletus, where, however, it verges somewhat more upon the purple. It admits of being melted by the action of fire, and is fused for the preparation of glass.

Thebaic stone, which is sprinkled all over with spots like gold, is found in Africa, on the side of it which lies adjacent to Egypt; the small hones which it supplies being peculiarly adapted, from their natural properties, for grinding the ingredients used in preparations for the eyes. In the neighbourhood of Syene, too, in Thebais, there is a stone found that is now known as "syenites,"[85] but was formerly called "pyrrhopœcilon."[86]

## CHAP. 14.—OBELISKS.

Monarchs, too, have entered into a sort of rivalry with one another in forming elongated blocks of this stone, known as "obelisks,"[87] and consecrated to the divinity of the Sun. The blocks had this form given to them in resemblance to the rays of that luminary, which are so called[88] in the Egyptian language.

Mesphres,[89] who reigned in the City of the Sun,[90] was the first who erected one of these obelisks, being warned to do so in a dream: indeed, there is an inscription upon the obelisk to this effect; for the sculptures and figures which we still see engraved thereon are no other than Egyptian letters.[91]

At a later period other kings had these obelisks hewn. Sesosthes[92] erected four of them in the above-named city, forty-eight cubits in height. Rhamsesis,[93] too, who was

red heat, for discharging the brown and green tints of glass. See also B. XXXIV. c. 42, and the Note.

[85] Syenite is the name still given to feldspar, hornblende, and quartz, passing into each other by insensible gradations, and resembling granite.

[86] "Varied with red spots," similar to our red granite.

[87] "Obelisci." So called from ὀβελισκὸς, a "small spit," in consequence of their tapering form.

[88] Meaning, probably, that in the Egyptian language, the same word is used as signifying a "spit" and a "ray" of light; for it is generally agreed that the word "obeliscus" is of Greek origin.

[89] He does not appear to have been identified; and the correct reading is doubtful.

[90] Heliopolis, or On. See B. V. c. 11.

[91] These figures or hieroglyphics did not denote the *phonetic language* of Egypt, but only formed a symbolical writing.

[92] Perhaps the same as "Sesostris." The former reading is "Sothis."

[93] Ajasson identifies him with Rameses III., a king of the eighteenth dynasty, who reigned B.C. 1561. This was also one of the names of Sesostris the Great.

reigning at the time of the capture of Troy, erected one, a hundred and forty cubits high. Having quitted the spot where the palace of Mnevis[94] stood, this monarch erected another obelisk,[95] one hundred and twenty cubits in height, but of prodigious thickness, the sides being no less than eleven cubits in breadth. (9.) It is said that one hundred and twenty thousand men were employed upon this work;[95] and that the king, when it was on the point of being elevated, being apprehensive that the machinery employed might not prove strong enough for the weight, with the view of increasing the peril that might be entailed by due want of precaution on the part of the workmen, had his own son fastened to the summit; in order that the safety of the prince might at the same time ensure the safety of the mass of stone. It was in his admiration of this work, that, when King Cambyses took the city by storm, and the conflagration had already reached the very foot of the obelisk, he ordered the fire to be extinguished; he entertaining a respect for this stupendous erection which he had not entertained for the city itself.

There are also two other obelisks, one of them erected by Zmarres,[96] and the other by Phius;[97] both of them without inscriptions, and forty-eight cubits in height. Ptolemæus Philadelphus had one erected at Alexandria, eighty cubits high, which had been prepared by order of King Necthebis:[98] it was without any inscription, and cost far more trouble in its carriage and elevation, than had been originally expended in quarrying it. Some writers inform us that it was conveyed on a raft, under the inspection of the architect Satyrus; but Callixenus[99] gives the name of Phœnix. For this pur-

[94] The name of the bull divinity worshipped by the people of On, or Heliopolis; while by the people of Memphis it was known as Apis.

[95] This, Hardouin says, was the same obelisk that was afterwards erected by Constantius, son of Constantine the Great, in the Circus Maximus at Rome; whence it was removed by Pope Sextus V., in the year 1588, to the Basilica of the Lateran.

[96] This name is probably mutilated: there are about twenty different readings of it.

[97] This name is also very doubtful. One reading is "Eraph," and Hardouin attempts to identify him with the Pharaoh Hophra of Jeremiah, xliv. 30, the Ouafres of the Chronicle of Eusebius, and the Apries of Herodotus.

[98] The Nectanabis, probably, of Plutarch, in his Life of Agesilaüs, and the Nectanebus of Nepos, in the Life of Chabrias.

[99] Callixenus of Rhodes was a contemporary of Ptolemy Philadelphus,

pose, a canal was dug from the river Nilus to the spot where the obelisk lay; and two broad vessels, laden with blocks of similar stone a foot square, the cargo of each amounting to double the size, and consequently double the weight, of the obelisk, were brought beneath it; the extremities of the obelisk remaining supported by the opposite sides of the canal. The blocks of stone were then removed, and the vessels, being thus gradually lightened, received their burden. It was erected upon a basis of six square blocks, quarried from the same mountain, and the artist was rewarded with the sum of fifty talents.[1] This obelisk was placed by the king above-mentioned in the Arsinoëum,[2] in testimony of his affection for his wife and sister Arsinoë. At a later period, as it was found to be an inconvenience to the docks, Maximus, the then prefect of Egypt, had it transferred to the Forum there, after removing the summit for the purpose of substituting a gilded point; an intention which was ultimately abandoned.

There are two other obelisks, which were in Cæsar's Temple at Alexandria, near the harbour there, forty-two cubits in height, and originally hewn by order of King Mesphres. But the most difficult enterprise of all, was the carriage of these obelisks by sea to Rome, in vessels which excited the greatest admiration. Indeed, the late Emperor Augustus consecrated the one which brought over the first obelisk, as a lasting memorial of this marvellous undertaking, in the docks at Puteoli; but it was destroyed by fire. As to the one in which, by order of the Emperor Caius,[3] the other obelisk had been transported to Rome, after having been preserved for some years and looked upon as the most wonderful construction ever beheld upon the seas, it was brought to Ostia, by order of the late Emperor Claudius; and towers of Puteolan[4] earth being first erected upon it, it was sunk for the construction of the harbour which he was making there. And then, besides, there was the necessity of constructing other vessels to carry these obelisks up the Tiber; by which it became practically ascer-

and was the author of a description of Alexandria, and of a catalogue of painters and sculptors.

[1] Egyptian talents, probably. See. B. xxxiii. c. 15.

[2] Evidently a stupendous monument, or rather aggregate of buildings, erected by Ptolemy II., Philadelphus, in memory of his wife and sister, Arsinoë. See B. xxxiv. c. 42.

[3] Caligula.

[4] See B. xvi. c. 76, and B. xxxv. c. 47.

tained, that the depth of water in that river is not less than that of the river Nilus.

The obelisk that was erected by the late Emperor Augustus in the Great Circus,[5] was originally quarried by order of King Semenpserteus,[6] in whose reign it was that Pythagoras[7] visited Egypt. It is eighty-five feet[8] and three quarters in height, exclusive of the base, which is a part of the same stone. The one that he erected in the Campus Martius, is nine feet less in height, and was originally made by order of Sesothis. They are both of them covered with inscriptions, which interpret the operations of Nature according to the philosophy of the Egyptians.

CHAP. 15. (10.)—THE OBELISK WHICH SERVES AS A DIAL IN THE CAMPUS MARTIUS.

The one that has been erected in the Campus Martius[9] has been applied to a singular purpose by the late Emperor Augustus; that of marking the shadows projected by the sun, and so measuring the length of the days and nights. With this object, a stone pavement was laid, the extreme length of which corresponded exactly with the length of the shadow thrown by the obelisk at the sixth hour[10] on the day of the winter solstice. After this period, the shadow would go on, day by day, gradually decreasing, and then again[11] would as gradually increase, correspondingly with certain lines of brass that were inserted in the stone; a device well deserving to be known, and due to the ingenuity of Facundus Novus, the mathematician. Upon the apex of the obelisk he placed a gilded ball, in order that the shadow of the summit might be con-

[5] Or Circus Maximus; in the Eleventh Region of the City. According to Kircher, it was this obelisk that Pope Sextus V. had disinterred, and placed before the church of the Madonna del Popolo.

[6] There are sixteen various readings to this name.

[7] Diogenes Laertius says that he arrived in Egypt in the reign of King Amasis.

[8] Boscovich and Brotero would read here "*eighty-two* feet and three quarters," which is more in accordance with its height, as measured by Kircher.

[9] After being long buried in ruins, it was disinterred, but not re-erected, by Pope Benedict XIV. When thus brought to light, it was found to be broken asunder. On it there was an inscription stating that the Emperor Augustus had "presented it to the Sun"—"Soli donum dedit."

[10] Twelve o'clock in the day. [11] After the summer solstice.

densed and agglomerated, and so prevent the shadow of the apex itself from running to a fine point of enormous extent; the plan being first suggested to him, it is said, by the shadow that is projected by the human head. For nearly the last thirty years, however, the observations derived from this dial have been found not to agree: whether it is that the sun itself has changed its course in consequence of some derangement of the heavenly system; or whether that the whole earth has been in some degree displaced from its centre, a thing that, I have heard say, has been remarked in other places as well; or whether that some earthquake, confined to this city only, has wrenched the dial from its original position; or whether it is that in consequence of the inundations of the Tiber, the foundations of the mass have subsided, in spite of the general assertion that they are sunk as deep into the earth as the obelisk erected upon them is high.

(11.) The third[12] obelisk[13] at Rome is in the Vaticanian[14] Circus, which was constructed by the Emperors Caius[15] and Nero; this being the only one of them all that has been broken in the carriage. Nuncoreus,[16] the son of Sesoses, made it: and there remains[17] another by him, one hundred cubits in height, which, by order of an oracle, he consecrated to the Sun, after having lost his sight and recovered it.

## CHAP. 16. (12.)—MARVELLOUS WORKS IN EGYPT. THE PYRAMIDS.

We must make some mention, too, however cursorily, of the Pyramids of Egypt, so many idle[18] and frivolous pieces of ostentation of their resources, on the part of the monarchs of that country. Indeed, it is asserted by most persons, that the only motive for constructing them, was either a determination not to leave their treasures to their successors or to rivals that

[12] The one that is mentioned above as having been removed from Alexandria by Caligula.

[13] This obelisk was transferred by Pope Sextus V. from the Circus Vaticanus to the place of the Cathedral of St. Peter.

[14] So called because it was laid out on some gardens which had belonged to one Vaticanus.

[15] Caligula.

[16] There are nine or ten readings of this name. Bunsen suggests "Menophtheus," the Egyptian king Meneph-Pthah.

[17] In Egypt, probably.

[18] Ajasson thinks that they were intended as places of sepulture for the kings, but for the concealment, also, of their treasures.

might be plotting to supplant them, or to prevent the lower classes from remaining unoccupied. There was great vanity displayed by these men in constructions of this description, and there are still the remains of many of them in an unfinished state. There is one to be seen in the Nome of Arsinoïtes;[19] two in that of Memphites, not far from the Labyrinth, of which we shall shortly have to speak;[20] and two in the place where Lake Mœris[21] was excavated, an immense artificial piece of water, cited by the Egyptians among their wondrous and memorable works: the summits of the pyramids, it is said, are to be seen above the water.

The other three pyramids, the renown of which has filled the whole earth, and which are conspicuous from every quarter to persons navigating the river, are situate on the African[22] side of it, upon a rocky sterile elevation. They lie between the city of Memphis and what we have mentioned[23] as the Delta, within four miles of the river, and seven miles and a-half from Memphis, near a village known as Busiris, the people of which are in the habit of ascending them.

### CHAP. 17.—THE EGYPTIAN SPHINX.

In front of these pyramids is the Sphinx,[24] a still more wondrous object of art, but one upon which silence has been observed, as it is looked upon as a divinity by the people of the neighbourhood. It is their belief that King Harmaïs was buried in it, and they will have it that it was brought there from a distance. The truth is, however, that it was hewn from the solid rock; and, from a feeling of veneration, the face of the monster is coloured red. The circumference of the head, measured round the forehead, is one hundred and two feet, the length of the feet being one hundred and forty-three, and the

[19] See B. v. c. 9. [20] In Chapter 19 of this Book.

[21] See B. v. c. 9. Herodotus says that these pyramids were built by King Mœris, in the middle of the lake, towering fifty paces above the surface of the water. Diodorus Siculus says that they were built by him in honour of himself and his wife.

[22] Or left-hand side to those coming down the stream. He alludes to the three great Pyramids of Ghizeh, not far from Cairo. There are numerous other pyramids to be seen in Egypt. [23] In B. v. c. 9.

[24] It still exists, though the face is mutilated. It was disinterred from the sand by Belzoni, but is now again nearly covered. According to Cavaglia, the signature of the Historian Arrian was found inscribed on one of the fore-paws, when it was disinterred.

height, from the belly to the summit of the asp on the head, sixty-two.[25]

The largest[26] Pyramid is built of stone quarried in Arabia: three hundred and sixty thousand men, it is said, were employed upon it twenty years, and the three were completed in seventy-eight years and four months. They are described by the following writers: Herodotus,[27] Euhemerus, Duris of Samos, Aristagoras, Dionysius, Artemidorus, Alexander Polyhistor, Butoridas, Antisthenes, Demetrius, Demoteles, and Apion. These authors, however, are disagreed as to the persons by whom they were constructed; accident having, with very considerable justice, consigned to oblivion the names of those who erected such stupendous memorials of their vanity. Some of these writers inform us that fifteen hundred talents were expended upon radishes, garlic, and onions[28] alone.

The largest Pyramid occupies seven[29] jugera of ground, and the four angles are equidistant, the face of each side being eight hundred and thirty-three[30] feet in length. The total height from the ground to the summit is seven hundred and twenty-five feet, and the platform on the summit is sixteen feet and a-half in circuit. Of the second Pyramid, the faces of the four sides are each seven hundred and fifty-seven feet and a-half in length.[31] The third is smaller than the others, but far more prepossessing in appearance: it is built of Æthiopian stone,[32]

[25] This reading is, perhaps, preferable to the LXI. s. (61½) of the Bamberg MS. The head and neck, when uncovered, were found to be 27 feet in height.

[26] Built by King Cheops, according to Herodotus, B. ii.

[27] All these writers are mentioned in the list of authors at the end of the present Book.

[28] For the use of the workmen. There is, probably, no foundation for a statement so exact as this; as it would be very singular that such a fact should continue to be known, and the names of the builders be buried in oblivion.

[29] According to modern measurement, the sides of its base measure at the foundation 763 feet 4 inches, and it occupies a space of more than 13 acres. Its perpendicular height is 480 feet.

[30] Other readings are 883, and 783.

[31] Differing very considerably from the modern measurement. These variations may possibly arise, however, from a large portion of the base being covered with sand.

[32] It was entirely coated with marble from the Thebaid; which, however, was removed by the Arabs in the middle ages. In the vicinity there

and the face between the four corners is three hundred and sixty-three feet in extent. In the vicinity of these erections, there are no vestiges of any buildings left. Far and wide there is nothing but sand to be seen, of a grain somewhat like a lentil in appearance, similar to that of the greater part of Africa, in fact.

The most difficult problem is, to know how the materials for construction could possibly be carried to so vast a height. According to some authorities, as the building gradually advanced, they heaped up against it vast mounds of nitre[33] and salt; which piles were melted after its completion; by introducing beneath them the waters of the river. Others, again, maintain, that bridges were constructed, of bricks of clay, and that, when the pyramid was completed, these bricks were distributed for erecting the houses of private individuals. For[34] the level of the river, they say, being so much lower, water could never by any possibility have been brought there by the medium of canals. In the interior of the largest Pyramid there is a well, eighty-six cubits deep, which communicates with the river, it is thought. The method of ascertaining the height of the Pyramids and all similar edifices was discovered[35] by Thales of Miletus; he measuring the shadow at the hour of the day at which it is equal in length to the body projecting it.

Such are the marvellous Pyramids; but the crowning marvel of all is, that the smallest, but most admired of them—that we may feel no surprise at the opulence of the kings—was built by Rhodopis,[36] a courtesan! This woman was once the fellow-slave of Æsopus the philosopher and fabulist, and the sharer

is a fourth pyramid, but of such small dimensions that some of the Egyptian obeliska exceed it in height.

[33] "Nitrum." See B. xxxi. c. 46.

[34] From this reason being given, it would almost appear that these "bridges" in reality were aqueducts, for conveying the water, in order to melt the mounds of salt and nitre.

[35] A very improbable story, as Ajasson remarks; as if the method of ascertaining the heights of edifices was unknown to the sages of Egypt, and the constructors of the Pyramids!

[36] Herodotus, B. ii. cc. 134, 5, takes great pains to prove the absurdity of this story; and there is little doubt that the beautiful courtesan has been confounded with the equally beautiful Egyptian Queen, Nitocris, who is said by Julius Africanus and Eusebius to have built the third pyramid. As to the courtesan having been a fellow-slave of the fabulist, Æsop, it is extremely doubtful.

of his bed; but what is much more surprising is, that a courtesan should have been enabled, by her vocation, to amass such enormous wealth.

### CHAP. 18.—THE PHAROS.

There is another building, too, that is highly celebrated; the tower that was built by a king of Egypt, on the island of Pharos, at the entrance to the[37] harbour of Alexandria. The cost of its erection was eight hundred talents, they say; and, not to omit the magnanimity that was shown by King Ptolemæus[38] on this occasion, he gave permission to the architect, Sostratus[39] of Cnidos, to inscribe his name upon the edifice itself. The object of it is, by the light of its fires at night, to give warning to ships, of the neighbouring shoals, and to point out to them the entrance of the harbour. At the present day, there are similar fires lighted up in numerous places, Ostia and Ravenna, for example. The only danger[40] is, that when these fires are thus kept burning without intermission, they may be mistaken for stars, the flames having very much that appearance at a distance. This architect is the first person that built a promenade upon arches; at Cnidos, it is said.

### CHAP. 19. (13.)—LABYRINTHS.

We must speak also of the Labyrinths, the most stupendous works, perhaps, on which mankind has expended its labours; and not for chimerical purposes, merely, as might possibly be supposed.

There is still in Egypt, in the Nome of Heracleopolites,[41] a labyrinth,[42] which was the first constructed, three thousand six hundred years ago, they say, by King Petesuchis or Tithoës: although, according to Herodotus, the entire work was the production of no less than twelve kings, the last of

[37] The greater harbour, there being two at Alexandria.

[38] Ptolemy Lagus.

[39] Supposed by Thiersch to have been the same person as the statuary mentioned in B. xxxiv. c. 19.

[40] A risk that is now obviated, if, indeed, there is such a risk, by the use of revolving lights and coloured lights.

[41] See B. v. c. 9.

[42] The site of this labyrinth has not been traced, but Sir G. Wilkinson is inclined to think that it was at Howarah el Soghaïr in the Faïoum.

whom was Psammetichus. As to the purpose for which it was built, there are various opinions: Demoteles says that it was the palace of King Moteris, and Lyceas that it was the tomb of Mœris, while many others assert that it was a building consecrated to the Sun, an opinion which mostly prevails.

That Dædalus took this for the model of the Labyrinth which he constructed in Crete, there can be no doubt; though he only reproduced the hundredth part of it, that portion, namely, which encloses circuitous passages, windings, and inextricable galleries which lead to and fro. We must not, comparing this last to what we see delineated on our mosaic pavements, or to the mazes[43] formed in the fields for the amusement of children, suppose it to be a narrow promenade along which we may walk for many miles together; but we must picture to ourselves a building filled with numerous doors, and galleries which continually mislead the visitor, bringing him back, after all his wanderings, to the spot from which he first set out. This[44] Labyrinth is the second, that of Egypt being the first. There is a third in the Isle of Lemnos, and a fourth in Italy.

They are all of them covered with arched roofs of polished stone; at the entrance, too, of the Egyptian Labyrinth, a thing that surprises me, the building is constructed of Parian marble, while throughout the other parts of it the columns are of syenites.[45] With such solidity is this huge mass constructed, that the lapse of ages has been totally unable to destroy it, seconded as it has been by the people of Heracleopolites, who have marvellously ravaged a work which they have always held in abhorrence. To detail the position of this work and the various portions of it is quite impossible, it being sub-

[43] Similar, probably, to the one at Hampton Court.

[44] Most modern writers, and some of the ancients, have altogether denied the existence of the Cretan Labyrinth; but, judging from the testimony of Tournefort and Cockerell, it is most probable that it really did exist, and that it was a vast natural grotto or cavern, enlarged and made additionally intricate by human ingenuity. There are many caverns of this nature in Crete, and one near Gortyna, at Hagios-Deka, is replete with galleries and intricate windings similar to those ascribed to the Labyrinth of Dædalus.

[45] See Chapter 13 of this Book. He is surprised that the people of Egypt, a country which abounded in exquisite marbles, should have used that of another country in preference to their own.

divided into regions and præfectures, which are styled nomes,[46] thirty in number, with a vast pâlace assigned to each. In addition to these, it should contain temples of all the gods of Egypt, and forty statues of Nemesis[47] in as many sacred shrines; besides numerous pyramids, forty ells[48] in height, and covering six aruræ[49] at the base. Fatigued with wandering to and fro, the visitor is sure to arrive at some inextricable crossing or other of the galleries. And then, too, there are banquetting rooms situate at the summit of steep ascents; porticos from which we descend by flights of ninety steps; columns in the interior, made of porphyrites;[50] figures of gods; statues of kings; and effigies of hideous monsters. Some of the palaces are so peculiarly constructed, that the moment the doors are opened a dreadful sound like that of thunder reverberates within: the greater part, too, of these edifices have to be traversed in total darkness. Then again, without the walls of the Labyrinth, there rises another mass of buildings known as the "Pteron;"[51] beneath which there are passages excavated leading to other subterranean palaces. One person, and only one, has made some slight repairs to the Labyrinth; Chæremon,[52] an eunuch of King Necthebis, who lived five hundred years before the time of Alexander the Great. It is asserted, also, that while the arched roofs of squared stone were being raised, he had them supported by beams of thorn[53] boiled in oil.

As for the Cretan Labyrinth, what I have already stated must suffice for that. The Labyrinth of Lemnos[54] is similar to it, only that it is rendered more imposing by its hundred and fifty columns; the shafts of which, when in the stone-yard, were so nicely balanced, that a child was able to manage the wheel of the lathe in turning them. The archi-

[46] As to the meaning of this word, see B. v. c. 9.

[47] See Chapter 5 of this Book.

[48] "Ulnæ." See Introduction to Vol. III.

[49] The ἄρουρα was a Greek square measure, containing 2500 square feet.

[50] See Chapter 11 of this Book.

[51] As to the meaning of this word, see Chapter 4 of this Book, page 317, and Note 77.

[52] "Circummon" is a more common reading.

[53] Or acacia. See B. xxiv. c. 65.

[54] Welcker remarks that it is uncertain whether this Labyrinth was erected as a temple of the Cabiri, or whether it had any connection with the art of mining.

tects were, Smilis,[55] Rhœcus,[56] and Theodorus, natives of the island, and there are still in existence some remains of it; whereas of the Cretan Labyrinth and of that in Italy not a vestige is left.

As to this last, which Porsena, King of Etruria, erected as his intended sepulchre, it is only proper that I should make some mention of it, if only to show that the vanity displayed by foreign monarchs, great as it is, has been surpassed. But as the fabulousness of the story connected with it quite exceeds all bounds, I shall employ the words given by M. Varro himself in his account of it:—"Porsena was buried," says he, "beneath the city of Clusium;[57] in the spot where he had had constructed a square monument, built of squared stone. Each side of this monument was three hundred feet in length and fifty in height, and beneath the base, which was also square, there was an inextricable labyrinth, into which if any one entered without a clew of thread, he could never find his way out. Above this square building there stand five pyramids, one at each corner, and one in the middle, seventy-five feet broad at the base, and one hundred and fifty feet in height. These pyramids are so tapering in their form, that upon the summit of all of them united there rests a brazen globe, and upon that a petasus;[58] from which there hang, suspended by chains, bells, which make a tinkling when agitated by the wind, like what was done at Dodona[59] in former times. Upon this globe there are four other pyramids, each one hundred feet in height; and above them is a single platform, on which there are five more pyramids,"[60]—the height of which Varro has evidently felt ashamed to add; but, according to the Etruscan fables, it was equal to that of the rest of the building. What

[55] Smilis lived, probably, 200 years before Rhœcus and Theodorus, and was a native of Ægina, not Lemnos. Sillig, however, is inclined to think that there were *two* artists of this name; the elder a contemporary of Dædalus, and the maker of several wooden statues.

[56] See B. xxxv. c. 43.

[57] See B. iii. c. 8.

[58] A round, broad-brimmed hat, such as we see represented in the statues of Mercury.

[59] Where two brazen vessels were erected on a column, adjoining to which was the statue of a boy with a whip; which, when agitated by the wind, struck the vessels, and omens were drawn from the tinkling noise produced, significant of future events, it was supposed.

[60] A building like this, as Niebuhr says, is absolutely impossible, and belongs to the "Arabian Nights." The description in some particulars resembles that of a Chinese pagoda.

downright madness this, to attempt to seek glory at an outlay which can never be of utility to any one; to say nothing of exhausting the resources of the kingdom, and after all, that the artist may reap the greater share of the praise!

CHAP. 20.—HANGING GARDENS. A HANGING CITY.

We read, too, of hanging gardens,[61] and what is even more than this, a hanging city,[62] Thebes in Egypt: it being the practice for the kings to lead forth their armies from beneath, while the inhabitants were totally unconscious of it. This, too, is even less surprising than the fact that a river flows through the middle of the city. If, however, all this had really been the case, there is no doubt that Homer would have mentioned it, he who has celebrated the hundred gates of Thebes.

CHAP. 21. (14.)—THE TEMPLE OF DIANA AT EPHESUS.

The most wonderful monument of Grecian magnificence, and one that merits our genuine admiration, is the Temple of Diana at Ephesus, which took one hundred and twenty years in building, a work in which all Asia[63] joined. A marshy soil was selected for its site, in order that it might not suffer from earthquakes, or the chasms which they produce. On the other hand, again, that the foundations of so vast a pile might not have to rest upon a loose and shifting bed, layers of trodden charcoal were placed beneath, with fleeces[64] covered with wool upon the top of them. The entire length of the temple is four hundred and twenty-five feet, and the breadth two hundred and twenty-five. The columns are one hundred and twenty-seven in number, and sixty feet in height, each of them presented by a different king. Thirty-six of these columns are carved, and one of them by the hand of Scopas.[65] Chersiphron[66] was the architect who presided over the work.

[61] Probably of Babylon, which were built on terraces raised on arches.

[62] His meaning is, that it was built upon arches.

[63] Asia Minor.

[64] The Hotel de Ville at Brussels is said to have been built upon a stratum of hides.

[65] See Chapter 4 of the present Book. Sillig, in his "Dictionary of Ancient Artists," suggests a reading which would make the passage to mean that Scopas was jointly architect with Chersiphron. The latter, however, was *not* the architect of the *second* temple at Ephesus, but flourished nearly four hundred years before.

[66] Strabo says that, in conjunction with his son Metagenes, he began the *first* Temple at Ephesus. Thiersch is of opinion that he lived about the first Olympiad. He is mentioned also in B. vii. c. 38.

The great marvel in this building is, how such ponderous architraves[67] could possibly have been raised to so great a height. This, however, the architect effected by means of bags filled with sand, which he piled up upon an inclined plane until they reached beyond the capitals of the columns; then, as he gradually emptied the lower bags, the architraves[68] insensibly settled in the places assigned them. But the greatest difficulty of all was found, in laying the lintel which he placed over the entrance-doors. It was an enormous mass of stone, and by no possibility could it be brought to lie level upon the jambs which formed its bed; in consequence of which, the architect was driven to such a state of anxiety and desperation as to contemplate suicide. Wearied and quite worn out by such thoughts as these, during the night, they say, he beheld in a dream the goddess in honour of whom the temple was being erected; who exhorted him to live on, for that she herself had placed the stone in its proper position. And such, in fact, next morning, was found to be the case, the stone apparently having come to the proper level by dint of its own weight. The other decorations of this work would suffice to fill many volumes, but they do not tend in any way to illustrate the works of Nature.

CHAP. 22. (15.)—MARVELS CONNECTED WITH OTHER TEMPLES.

There still exists, too, at Cyzicus,[69] a temple of polished stone, between all the joints of which the artist has inserted a thread of gold; it being his intention to erect an ivory statue of Jupiter within, with Apollo in marble crowning him. The result is, that the interstices quite glisten with their fine, hair-like threads; and the reflection of the gold, obscured as it is, gently falling upon the statues, besides proclaiming the genius of the artist, heightens their effect, and so teaches us to appreciate the costliness of the work.

CHAP. 23.—THE FUGITIVE STONE. THE SEVEN-FOLD ECHO. BUILDINGS ERECTED WITHOUT THE USE OF NAILS.

In the same city also, there is a stone, known as the "Fugi-

[67] "Epistylia." See B. XXXV. c. 49.

[68] Which must have been above the bags and at the summit of the inclined plane.

[69] See B. V. c. 40.

tive Stone;"[70] the Argonautæ, who used it for the purposes of an anchor, having left it there. This stone having repeatedly taken flight from the Prytanæum,[71] the place so called where it is kept, it has been fastened down with lead. In this city also, near the gate which is known as the "Trachia,"[72] there are seven towers, which repeat a number of times all sounds that are uttered in them. This phenomenon, to which the name of "Echo," has been given by the Greeks, depends upon the peculiar conformation of localities, and is produced in valleys more particularly. At Cyzicus, however, it is the effect of accident only; while at Olympia, it is produced by artificial means, and in a very marvellous manner; in a portico there, which is known as the "Heptaphonon,"[73] from the circumstance that it returns the sound of the voice seven times.

At Cyzicus, also, is the Buleuterium,[74] a vast edifice, constructed without a nail of iron; the raftering being so contrived as to admit of the beams being removed and replaced without the use of stays. A similar thing, too, is the case with the Sublician Bridge[75] at Rome; and this by enactment, on religious grounds, there having been such difficulty experienced in breaking it down when Horatius Cocles[75*] defended it.

CHAP. 24.—MARVELLOUS BUILDINGS AT ROME, EIGHTEEN IN NUMBER.

But it is now time to pass on to the marvels in building displayed by our own City, and to make some enquiry into the resources and experience that we have gained in the lapse of eight hundred years; and so prove that here, as well, the rest of

[70] "Lapis Fugitivus."

[71] A public place where the Prytanes or chief magistrates assembled, and where the public banquets were celebrated.

[72] Or "Narrow" gate, apparently. Dion Cassius, B. 74, tells a similar story nearly, of seven towers at Byzantium, near the *Thracian Gate*; and "Thracia" is given by the Bamberg MS. It is most probable that the two accounts were derived from the same source.

[73] Ἑπτάφωνον, "seven times vocal." Plutarch also mentions this portico.

[74] Βουλευτήριον, the "senate house" or "council-chamber."

[75] It was the most ancient of the bridges at Rome, and was so called from its being built upon "sublices," or wooden beams. It was originally built by Ancus Martius, and was afterwards rebuilt by the Pontifices or pontiffs. We learn from Ovid, Fasti, B. v. l. 621, that it was still a wooden bridge in the reign of Augustus. In the reign of Otho it was carried away by an inundation. In later times it was also known as the Pons Æmilius, from the name of the person probably under whose superintendence it was rebuilt.

[75*] See B. xxxiv. c. 11.

the world has been outdone by us: a thing which will appear, in fact, to have occurred almost as many times as the marvels are in number which I shall have to enumerate. If, indeed, all the buildings of our City are considered in the aggregate, and supposing them, so to say, all thrown together in one vast mass, the united grandeur of them would lead one to suppose that we were describing another world, accumulated in a single spot.

Not to mention among our great works, the Circus Maximus, that was constructed by the Dictator Cæsar, one stadium in width and three in length, and occupying, with the adjacent buildings, no less than four jugera, with room for two hundred and sixty thousand spectators seated; am I not to include in the number of our magnificent constructions, the Basilica of Paulus,[76] with its admirable Phrygian columns; the Forum of the late Emperor Augustus; the Temple of Peace, erected by the Emperor Vespasianus Augustus—some of the finest works that the world has ever beheld—the roofing, too, of the Vote-Office,[77] that was built by Agrippa? not to forget that, before his time, Valerius of Ostia, the architect, had covered in a theatre at Rome, at the time of the public Games celebrated by Libo?[78]

We behold with admiration pyramids that were built by kings, when the very ground alone, that was purchased by the Dictator Cæsar, for the construction of his Forum, cost one hundred millions of sesterces! If, too, an enormous expenditure has its attractions for any one whose mind is influenced by monetary considerations, be it known to him that the house in which Clodius dwelt, who was slain by Milo, was purchased by him at the price of fourteen million eight hundred thousand sesterces! a thing that, for my part, I look upon as no less astounding than the monstrous follies that have been displayed by kings. And then, as to Milo himself, the sums in which he was indebted, amounted to no less than seventy mil-

[76] L. Æmilius Paulus, who was consul with C. Marcellus, A.U.C. 703. His Basilica, a building which served as a court of law and as an exchange, was erected in the Eighth Region of the City, at the cost of 1500 talents; which were sent to him by Cæsar, Plutarch says, as a bribe to gain him over from the aristocratical party. It was surrounded with an open peristyle of columns of Phrygian marble.

[77] "Diribitorium." See B. xvi. c. 76.

[78] Scribonius Libo, who was Ædile during the consulship of Cicero.

lions of sesterces; a state of things, to be considered, in my opinion, as one of the most portentous phænomena in the history of the human mind. But it was in those days, too, that old men still spoke in admiration of the vast proportions of the Agger,[79] and of the enormous foundations of the Capitol; of the public sewers, too, a work more stupendous than any; as mountains had to be pierced for their construction, and, like the hanging city[80] which we recently mentioned, navigation had to be carried on beneath Rome; an event which happened in the ædileship[81] of M. Agrippa, after he had filled the office of consul.

For this purpose, there are seven rivers, made, by artificial channels, to flow beneath the city. Rushing onward, like so many impetuous torrents, they are compelled to carry off and sweep away all the sewerage; and swollen as they are by the vast accession of the pluvial waters, they reverberate against the sides and bottom of their channels. Occasionally, too, the Tiber, overflowing, is thrown backward in its course, and discharges itself by these outlets: obstinate is the contest that ensues within between the meeting tides, but so firm and solid is the masonry, that it is enabled to offer an effectual resistance. Enormous as are the accumulations that are carried along above, the work of the channels never gives way. Houses falling spontaneously to ruins, or levelled with the ground by conflagrations, are continually battering against them; the ground, too, is shaken by earthquakes every now and then; and yet, built as they were in the days of Tarquinius Priscus, seven hundred years ago, these constructions have survived, all but unharmed. We must not omit, too, to mention one remarkable circumstance, and all the more remarkable from the fact, that the most celebrated historians have omitted to mention it. Tarquinius Priscus having commenced the sewers, and set the lower classes to work upon them, the laboriousness and prolonged duration of the employment became equally an object of dread to them; and the consequence was, that suicide was a thing of common occurrence, the

[79] "Mound," or "Terrace." See B. iii. c. 9, where it is ascribed to Tarquinius Superbus; but Strabo seems to attribute its foundation to Servius Tullius.

[80] Thebes, in Egypt. See Chapter 20 of this Book.

[81] A.U.C. 721. He alludes probably to the cleansing of the sewers beneath the city, which took place, Dion Cassius informs us, in the ædileship of Agrippa.

citizens adopting this method of escaping their troubles. For this evil, however, the king devised a singular remedy, and one that has never[81*] been resorted to either before that time or since: for he ordered the bodies of all who had been thus guilty of self-destruction, to be fastened to a cross, and left there as a spectacle to their fellow-citizens and a prey to birds and wild beasts. The result was, that that sense of propriety which so peculiarly attaches itself to the Roman name, and which more than once has gained a victory when the battle was all but lost, came to the rescue on this occasion as well; though for this once, the Romans were in reality its dupes, as they forgot that, though they felt shocked at the thoughts of such ignominy while alive, they would be quite insensible to any such disgrace when dead. It is said that Tarquinius made these sewers of dimensions sufficiently large to admit of a waggon laden with hay passing along them.

All that we have just described, however, is but trifling when placed in comparison with one marvellous fact, which I must not omit to mention before I pass on to other subjects. In the consulship[82] of M. Lepidus and Q. Catulus, there was not at Rome, as we learn from the most trustworthy authors, a finer house than the one which belonged to Lepidus himself: and yet, by Hercules! within five-and-thirty years from that period, the very same house did not hold the hundredth rank even in the City! Let a person, if he will, in taking this fact into consideration, only calculate the vast masses of marble, the productions of painters, the regal treasures that must have been expended, in bringing these hundred mansions to vie with one that had been in its day the most sumptuous and the most celebrated in all the City; and then let him reflect how that, since that period, and down to the present time, these houses have all of them been surpassed by others without number. There can be no doubt that conflagrations are a punishment inflicted upon us for our luxury; but such are our habits, that in spite of such warnings as these, we cannot be made to understand that there are things in existence more perishable even than man himself.

But there are still two other mansions by which all these edifices have been eclipsed. Twice have we seen the whole

[81*] As Hardouin remarks, the story of the Milesian Virgins, as related by Aulus Gellius and Plutarch, is very similar.

[82] A.U.C. 676.

City environed by the palaces of the Emperors Caius[83] and Nero; that of the last, that nothing might be wanting to its magnificence, being coated with gold.[84] Surely such palaces as these must have been intended for the abode of those who created this mighty empire, and who left the plough or their native hearth to go forth to conquer nations, and to return laden with triumphs! men, in fact, whose very fields even occupied less space than the audience-chambers[85] of these palaces.

Indeed, one cannot but help reflecting how trifling a portion of these palaces was equal to the sites which the republic granted to its invincible generals, for the erection of their dwellings. The supreme honour, too, attendant upon these grants—as in the case of P. Valerius Publicola, the first consul with L. Brutus, for his many meritorious services; and of his brother, who twice in one consulship defeated the Sabines—was the permission granted, by the terms of the decree, to have the doors of their houses opening from without, and the gates thrown back upon the public street. Such was the most distinguished privilege accorded in those days to triumphal mansions even!

I will not permit, however, these two Caiuses,[86] or two Neros, to enjoy this glory even, such as it is; for I will prove that these extravagant follies of theirs have been surpassed, in the use that was made of his wealth by M. Scaurus, a private citizen. Indeed, I am by no means certain that it was not the ædileship of this personage that inflicted the first great blow upon the public manners, and that Sylla was not guilty of a greater crime in giving such unlimited power to his stepson,[87] than in the proscription of so many thousands. During his ædileship, and only for the temporary purposes of a few days, Scaurus executed the greatest[88] work that has ever been

[83] Caligula. The Palace of Caligula was situate on the Palatine Hill: that of Nero extended from the Palatine Hill to the Esquiline, nearly the whole of which was covered by it. It was left unfinished by Nero, but the Emperor Otho completed it. Martial, Spectac. Ep. 2, speaks in terms of indignation of there being now "but one house in all the City;" but, unfortunately, he gives utterance to it with a view of flattering Domitian.

[84] Whence its name, "Aurea," the "golden" Palace. [85] "Sellaria."

[86] By this mode of expression, he probably means that they were "birds of a feather"—one as bad as the other.

[87] His mother, Metella Cæcilia, became the wife of Sylla.

[88] He forgets the Pyramids and the Labyrinth of Egypt, which he has so recently described.

made by the hands of man, even when intended to be of everlasting duration; his Theatre, I mean. This building consisted of three storeys, supported upon three hundred and sixty columns; and this, too, in a city which had not allowed without some censure one of its greatest citizens[89] to erect six[90] pillars of Hymettian marble. The ground-storey was of marble, the second of glass, a species of luxury which ever since that time has been quite unheard of, and the highest of gilded wood. The lowermost columns, as previously[91] stated, were eight-and-thirty feet in height; and, placed between these columns, as already[92] mentioned, were brazen statues, three thousand in number. The area[93] of this theatre afforded accommodation for eighty thousand spectators; and yet the Theatre of Pompeius, after the City had so greatly increased, and the inhabitants had become so vastly more numerous, was considered abundantly large, with its sittings for forty thousand only. The rest of the fittings of it, what with Attalic[94] vestments, pictures, and the other stage-properties,[95] were of such enormous value that, after Scaurus had had conveyed to his Tusculan villa such parts thereof as were not required for the enjoyment of his daily luxuries, the loss was no less than three hundred millions of sesterces, when the villa was burnt by his servants in a spirit of revenge.

The consideration of such prodigality as this quite distracts my attention, and compels me to digress from my original purpose, in order to mention a still greater instance of extravagance, in reference to wood. C. Curio,[96] who died during the civil wars, fighting on the side of Cæsar, found, to his dismay, that he could not, when celebrating the funeral games in honour of his father, surpass the riches and magnificence of Scaurus—for where, in fact, was to be found such a stepsire as Sylla, and such a mother as Metella, that bidder at all auctions for the property of the proscribed? Where, too, was he to find for his father, M. Scaurus, so long the principal man in the city, and one who had acted, in his alliance with Marius,

[89] See B. xvii. c. 1, and Chapter 3 of the present Book. L. Crassus is the person alluded to.

[90] "Four" is the number mentioned in B. xvii. c. 1.

[91] In Chapter 2 of this Book. [92] In B. xxxiv. c. 17.

[93] "Cavea." The place where the spectators sat, much like the "pit" of our theatres. [94] See B. xxxiii. c. 19. [95] "Choragio."

[96] He was defeated and slain in Africa by Juba and P. Attius Varus.

as a receptacle for the plunder of whole provinces?—Indeed, Scaurus himself was now no longer able to rival himself; and it was at least one advantage which he derived from this destruction by fire of so many objects brought from all parts of the earth, that no one could ever after be his equal in this species of folly. Curio, consequently, found himself compelled to fall back upon his own resources, and to think of some new device of his own. It is really worth our while to know what this device was, if only to congratulate ourselves upon the manners of the present day, and to reverse the ordinary mode of expression, and term ourselves the men of the olden time.[97]

He caused to be erected, close together, two theatres of very large dimensions, and built of wood, each of them nicely poised, and turning on a pivot. Before mid-day, a spectacle of games was exhibited in each; the theatres being turned back to back, in order that the noise of neither of them might interfere with what was going on in the other. Then, in the latter part of the day, all on a sudden, the two theatres were swung round, and, the corners uniting, brought face to face; the outer frames,[98] too, were removed, and thus an amphitheatre was formed, in which combats of gladiators were presented to the view; men whose safety was almost less compromised than was that of the Roman people, in allowing itself to be thus whirled round from side to side. Now, in this case, which have we most reason to admire, the inventor or the invention? the artist, or the author of the project? him who first dared to think of such an enterprize, or him who ventured to undertake it? him who obeyed the order, or him who gave it? But the thing that surpasses all is, the frenzy that must have possessed the public, to take their seats in a place which must, of necessity have been so unsubstantial and so insecure. Lo and behold! here is a people that has conquered the whole earth, that has subdued the universe, that divides the spoils of kingdoms and of nations, that sends its laws to foreign lands, that shares in some degree the attributes of the immortal gods in common with mankind, suspended aloft in a machine, and showering plaudits even upon its own peril!

[97] And, consequently, of more strict manners, and more strict morals.

[98] "Tabulis." The wooden frames, probably, which formed the margin of one side of each theatre, and which, when they were brought together, would make a diameter running through the circle which they formed. Hardouin thinks that these theatres are alluded to in Virgil, Georg. B. III. l. 22, *et seq.*

This is indeed holding life cheap; and can we, after this, complain of our disasters at Cannæ? How vast the catastrophe that might have ensued! When cities are swallowed up by an earthquake, it is looked upon by mankind as a general calamity; and yet, here have we the whole Roman people, embarked, so to say, in two ships, and sitting suspended on a couple of pivots; the grand spectacle being its own struggle with danger, and its liability to perish at any moment that the overstrained machinery may give way! And then the object, too, of all this—that public favour may be conciliated for the tribune's[99] harangues at a future day, and that, at the Rostra, he may still have the power of shaking the tribes, nicely balanced[1] as they are! And really, what may he not dare with those who, at his persuasion, have braved such perils as these? Indeed, to confess the truth, at the funeral games celebrated at the tomb of his father, it was no less than the whole Roman people that shared the dangers of the gladiatorial combats. When the pivots had now been sufficiently worked and wearied, he gave another turn to his magnificent displays. For, upon the last day, still preserving the form of the amphitheatre, he cut the stage in two through the middle, and exhibited a spectacle of athletes; after which, the stage being suddenly withdrawn on either side, he exhibited a combat, upon the same day, between such of the gladiators as had previously proved victorious. And yet, with all this, Curio was no king, no ruler of the destinies of a nation, nor yet a person remarkable for his opulence even; seeing that he possessed no resources of his own, beyond what he could realize from the discord between the leading men.[2]

But let us now turn our attention to some marvels which, justly appreciated, may be truthfully pronounced to remain unsurpassed. Q. Marcius Rex,[3] upon being commanded by the senate to repair the Appian[4] Aqueduct, and those of the

[99] In allusion, probably, to the addresses delivered by Curio, when tribune, from the Rostra, in favour of Cæsar.

[1] "Pensiles." Pliny not improbably intends a pun here, this word meaning also "suspended," or "poised"—in reference, probably, to their suspension on the pivots in Curio's theatres.

[2] Between Cæsar and Pompey, which he is supposed to have inflamed for his own private purposes.

[3] He was prætor B.C. 144; and, in order that he might complete his aqueduct, his office was prolonged another year.

[4] This aqueduct was begun by Appius Claudius Cæcus, the censor, and was the first made at Rome; B.C. 313.

Anio[5] and Tepula,[6] constructed during his prætorship a new aqueduct,[7] which bore his name, and was brought hither by a channel pierced through the sides of mountains. Agrippa,[8] in his ædileship, united the Marcian with the Virgin[9] Aqueduct, and repaired and strengthened the channels of the others. He also formed seven hundred wells, in addition to five hundred fountains, and one hundred and thirty reservoirs, many of them magnificently adorned. Upon these works, too, he erected three hundred statues of marble or bronze, and four hundred marble columns; and all this in the space of a single year! In the work[10] which he has written in commemoration of his ædileship, he also informs us that public games were celebrated for the space of fifty-nine days, and that one hundred and seventy gratuitous baths were opened. The number of these last at Rome, has increased to an infinite[11] extent since his time.

The preceding aqueducts, however, have all been surpassed by the costly work which was more recently commenced by the Emperor Caius,[12] and completed by Claudius. Under these princes, the Curtian and Cæruleam Waters, with the New Anio,[13] were brought from a distance of forty miles, and at so high a level that all the hills were supplied with water, on which the City is built. The sum expended on these works was three hundred and fifty millions of sesterces. If we only take into consideration the abundant supply of water to the public, for baths, ponds, canals, household purposes, gardens,

[5] See B. iii. c. 17. It was commenced by M. Curius Dentatus, B.C. 273, the water being brought a distance of 43 miles. It was afterwards known as the "Anio Vetus," to distinguish it from another aqueduct from the same river, mentioned in this Chapter, and called the "Anio Novus." The former was constructed of Peperino stone, and the water-course was lined with cement. Considerable remains of it are still to be seen.

[6] The Aqua Tepula was constructed B.C. 127; so that it is doubtful if Pliny is not here in error.

[7] The Aqua Marcia was brought a distance of upwards of 60 miles, from the vicinity of Sublaqueum, now Subiaco, and was of such elevation that water could be supplied to the loftiest part of the Capitoline Hill. A considerable number of the arches are still standing. In the vicinity of the city it was afterwards united with the Aqua Tepula and the Aqua Julia; the watercourse of the last being above that of the Aqua Tepula, and that above the course of the Aqua Marcia. See B. xxxi. cc 24, 25.

[8] See B. xxxi. cc. 24, 25. [9] See B. xxxi. c. 25. [10] See end of B. iii.

[11] Victor mentions 856 public baths at Rome. [12] Caligula.

[13] Anio Novus.

places in the suburbs, and country-houses; and then reflect upon the distances that are traversed, the arches that have been constructed, the mountains that have been pierced, the valleys that have been levelled, we must of necessity admit that there is nothing to be found more worthy of our admiration throughout the whole universe.

Among the most memorable works, too, I, for my own part, should include another undertaking of the Emperor Claudius, although it was afterwards abandoned in consequence of the hatred borne him by his successor;[14] I mean the channel that was cut through a mountain as an emissary for Lake Fucinus;[15] a work which cost a sum beyond all calculation, and employed a countless multitude of workmen for many years. In those parts where the soil was found to be terreous, it was necessary to pump up the water by the aid of machinery; in other parts, again, the solid rock had to be hewn through. All this, too, had to be done in the midst of darkness within; a series of operations which can only be adequately conceived by those who were witnesses of them, and which no human language can possibly describe.

I pass in silence the harbour that has been formed at Ostia; the various roads, too, that have been cut across mountains; the Tyrrhenian Sea separated by an embankment from Lake Lucrinus;[16] and vast numbers of bridges constructed at an enormous expense. Among the many other marvels, too, of Italy, we are informed by Papirius Fabianus, a most diligent enquirer into the operations of Nature, that the marble there grows in the quarries; and those who work in the quarries assure us that the wounds thus inflicted upon the mountains fill up spontaneously. If such is the fact, luxury has good

[14] Nero.

[15] See B. ii. c. 106, and B. iii. c. 17. In order to check the sudden rise of its waters, a design was entertained by Julius Cæsar to construct a subterranean canal from the lake into the valley of the Liris, which, unfortunately, was frustrated by his death. Claudius, however, executed the work, by cutting a gallery upwards of an English mile and a half through the limestone rock; a work which, according to Suetonius, occupied thirty thousand workmen continually for eleven years. On opening it with a mock naval combat, an accident happened in which many persons lost their lives, and Claudius himself but narrowly escaped. The emissary answered its purpose for some time, and, though Nero suffered the works to fall into decay, they were repaired by Hadrian. In the middle ages, however, the work fell in, and has not since been restored.

[16] See B. iii. c. 9.

grounds for hoping that it will never be at a loss for a supply of materials for its gratification.

### CHAP. 25. (16.)—THE MAGNET: THREE REMEDIES

Upon quitting the marbles to pass on to the other more remarkable stones, who can for a moment doubt that the magnet[17] will be the first to suggest itself? For what, in fact, is there endowed with more marvellous properties than this? or in which of her departments has Nature displayed a greater degree of waywardness? She had given a voice to rocks, as already[18] mentioned, and had enabled them to answer man, or rather, I should say, to throw back his own words in his teeth. What is there in existence more inert than a piece of rigid stone? And yet, behold! Nature has here endowed stone with both sense and hands. What is there more stubborn than hard iron? Nature has, in this instance, bestowed upon it both feet and intelligence. It allows itself, in fact, to be attracted by the magnet, and, itself a metal which subdues all other elements, it precipitates itself towards the source of an influence at once mysterious and unseen. The moment the metal comes near it, it springs towards the magnet, and, as it clasps it, is held fast in the magnet's embraces. Hence it is that this stone is sometimes known by the name of "sideritis;"[19] another name given to it being "heraclion."[20] It received its name "magnes," Nicander informs us, from the person who was the first to discover it, upon Ida.[21] It is found, too, in various other countries, as in Spain, for example. Magnes, it is said, made this discovery, when, upon taking his herds to pasture, he found that the nails of his shoes and the iron ferrel of his staff adhered to the ground.

Sotacus[22] describes five[23] different kinds of magnet; the Æthiopian magnet; that of Magnesia, a country which borders

[17] "Magnes." [18] In Chapter 23 of this Book.

[19] "Iron earth;" from σίδηρος, "iron." The magnet, or loadstone itself, is an oxide of iron, known as Oxidulated iron, or Ferroso-ferric oxide; sometimes in combination with quartz or alumine.

[20] From Heraclea, in Lydia, or in Thessaly, according to some accounts. It is not improbable, however, that it was so called after "Heracles," or Hercules, on account of its powerful influence upon iron ores.

[21] Isidorus says, "India," in B. 16 of the "Origines."

[22] See the list of authors at the end of this Book.

[23] Varieties, no doubt, of oxide of iron.

on Macedonia, and lies to the right of the road which leads from the town of Bœbe to Iolcos; a third, from Hyettus in Bœotia; a fourth, from Alexandria in Troas; and a fifth, from Magnesia in Asia. The leading distinction in magnets is the sex, male and female,[24] and the next great difference in them is the colour. Those of Magnesia, bordering on Macedonia, are of a reddish black; those of Bœotia are more red than black; and the kind that is found in Troas is black, of the female sex, and consequently destitute of attractive power. The most inferior, however, of all, are those of Magnesia in Asia: they are white, have no attractive influence on iron, and resemble pumice in appearance. It has been found by experience, that the more nearly the magnet approaches to an azure colour, the better it is in quality. The Æthiopian magnet is looked upon as the best of all, and is purchased at its weight in silver: Zmiris in Æthiopia is the place where it is found, such being the name of a region there, covered with sand.

In the same country, too, the magnet called "hæmatites"[25] is found, a stone of a blood-red colour, and which, when bruised, yields a tint like that of blood, as also of saffron. The hæmatites has not the same property[26] of attracting iron that the ordinary magnet has. The Æthiopian magnet is recognized by this peculiarity, that it has the property, also, of attracting other magnets to it.[27] All these minerals are useful as ingredients in ophthalmic preparations, in certain proportions according to the nature of each: they are particularly good, too, for arresting defluxions of the eyes. Triturated in a calcined state, they have a healing effect upon burns.

In Æthiopia, too, not far from Zmiris, there is a mountain in which the stone called "theamedes"[28] is found, a mineral

[24] An absurd distinction, as Ajasson remarks; based, probably, on Eastern notions, and with reference to the comparative powers of attraction.

[25] From αἷμα, "blood." He alludes to Specular iron, red ochre, or red hematite, another oxide of iron.

[26] Sometimes it has, but in a very slight degree.

[27] Ajasson remarks that most probably the possessors of this pretended variety knew the distinction between the two poles of the magnet, and took care, when it was their interest to do so, to place the opposite pole towards that of the other loadstone.

[28] It was the belief of the Duke of Noya Caraffa, that this stone was identical with Tourmaline: but, as Beckmann says, tourmaline, when heated, first attracts iron, and then repels it. Hist. Inv. Vol. I. pp. 87, 88. *Bohn's Edition.* Ajasson is of opinion that the Theamedes was neither more nor less

which repels and rejects all kinds of iron. Of the attractive and repulsive properties of iron, we have spoken[29] more than once.

CHAP. 26.—STONE OF SCYROS.

In the Isle of Scyros[30] there is a stone,[31] they say, which floats upon water when whole, but which falls to the bottom when broken into fragments.

CHAP. 27. (17.)—SARCOPHAGUS, OR STONE OF ASSOS: TEN REMEDIES.

At Assos in Troas, there is found a stone of a laminated texture, called "sarcophagus."[32] It is a well-known fact, that dead bodies, when buried in this stone, are consumed in the course of forty days, with the sole exception of the teeth. According to Mucianus, too, mirrors, body-scrapers, garments, and shoes, that have been buried with the dead, become transformed into stone. In Lycia, and in the East, there are certain stones of a similar nature, which, when attached to the bodies of the living even, corrode the flesh.

CHAP. 28.—CHERNITES.

Less active in its properties is chernites,[33] a stone which preserves bodies without consuming them, and strongly resembles ivory in appearance: the body of King Darius, they say, was buried in it. The stone that is known as "porus,"[33] is similar to Parian marble in hardness and whiteness, but is not so heavy. Theophrastus mentions also a transparent stone that is found in Egypt, and is similar to stone of Chios in appearance; it is by no means improbable that it may have existed in his time, for stones, we know, disappear, and new kinds are discovered. The stone of Assos,[34] which is saltish to the taste, modifies the attacks of gout, the feet being placed in a vessel made of it for the purpose; in addition to which,

than the ordinary loadstone, with the negative pole presented, by designing persons, *towards another magnet.*

[29] In B. ii. c. 98, and B. xx. c. 1. [30] See B. iv. c. 23.

[31] See B. ii. c. 106, Vol. I. p. 137, and Note 4. There is little doubt that this was a volcanic, porous product.

[32] From σάρξ, "flesh," and φάγω, "to eat." See B. ii. c. 98. Ajasson identifies it with Alunite, or Alum stone, in its several varieties.

[33] Both of them varieties of calcareous tufa, Ajasson thinks.

[34] Or Sarcophagus: see the preceding Chapter.

in the quarries of this stone, all maladies of the legs disappear, whereas, in mines in general, the legs become affected with disease. "Flower of stone of Assos" is the name given to a soft stone which crumbles into dust, and is found very efficacious in some cases; it resembles red pumice in appearance. In combination with Cyprian wax, this stone is curative of affections of the mamillæ; and, employed with pitch or resin, it disperses scrofulous sores and inflammatory tumours. Used in the form of an electuary, it is good for phthisis, and, with honey, it causes old sores to cicatrize, and consumes proud flesh. It is used, also, for the cure of wounds of an obstinate nature inflicted by animals, and acts as a desiccative upon suppurations. Plaisters, too, are made of it for gout, bean-meal being incorporated with it for the purpose.

CHAP. 29. (18.)—OSSEOUS STONES. PALM STONES. CORANI. BLACK STONES.

Theophrastus and Mucianus are of opinion that there are certain stones which bring[35] forth other stones. Theophrastus states, also, that a fossil[36] ivory is found, both white and black; that the earth, too, produces bones, and that osseous[37] stones are sometimes found. In the vicinity of Munda in Spain, the place where the Dictator Cæsar defeated Pompeius,[38] there are stones found, which, when broken asunder, bear the impression of palm leaves.[39]

There are some black stones, also, which are held in much the same esteem as the marbles; the Tænarian[40] stone, for example. Varro says that the black stone of Africa is more durable than that of Italy; while, on the other hand, the white corani[41] are harder than Parian marble. He states, also, that

[35] Democritus, amongst the ancients, and Savonarola and Cardan, in more recent times, have attributed to stones the powers of reproduction. Vivès speaks of certain diamonds which conceive and fructify; and Avicenna speaks of the selenite or moon-stone of Arabia, which, when suspended from a tree, generates other stones of a similar nature. Tournefort also entertained similar opinions.

[36] Fossil teeth of mammiferæ, probably.

[37] Fossil animal remains, no doubt.

[38] Cneius Pompeius. See B. iii. c. 3.

[39] "Palmati." This is more probably the meaning, than the "human palm," as Littré renders it. They were fossil impressions of leaves, in all probability.

[40] See Chapter 43 of this Book; also B. iv. cc. 7, 8.

[41] Stones so called, possibly, from being found in the vicinity of Cora

the silex of Luna admits of being cut with a saw; that that of Tusculum decrepitates in the fire; that the tawny silex of the Sabine districts, with the addition of oil, will yield a flame even; and that, at Volsinii, molar stones[42] for grinding are found. Among the prodigies that have happened, I find mention made of millstones that have moved of themselves.

CHAP. 30.—MOLAR STONES. PYRITES; SEVEN REMEDIES.

In no country are the molar stones[43] superior to those of Italy; stones, be it remembered, and not fragments of rock: there are some provinces, too, where they are not to be found at all. Some stones of this class are softer than others, and admit of being smoothed with the whetstone, so as to present all the appearance, at a distance, of ophites.[44] There is no stone of a more durable nature than this; for in general, stone, like wood, suffers from the action, more or less, of rain, heat, and cold. Some kinds, again, become deteriorated by the action of the moon, while others are apt to contract a rust in lapse of time, or to change their white colour when steeped in oil.

(19.) Some persons give this molar stone the name of "pyrites,"[45] from the circumstance that it has a great affinity to fire;[46] but there is also another kind of pyrites, of a more porous nature, and another,[47] again, which resembles copper. This last, it is said, is found in the mines, near Acamas,[48] in the Isle of Cyprus; one variety of it being of a silver, another of a golden, colour. There are various methods of melting these stones, some persons fusing them twice, or three times even, in honey, till all the liquid has evaporated; while others, again, calcine them upon hot coals, and, after treating them with honey, wash them like copper.

The medicinal properties which these minerals possess are of a calorific, desiccative, dispersive, and resolvent nature, and,

in Italy: See B. iii. c. 9. These stones are also mentioned by Isidorus, Orig. B. xvi. c. 4.

[42] Identified by Ajasson and Defontaines with Quartz molar agate, very abundant in this volcanic region of Italy.

[43] "Molares." "Millstone."

[44] Or Serpentine. See Chapter 11 of this Book.

[45] Not the Pyrites of modern Mineralogy, combinations of sulphur with various mineral ores.

[46] The Greek for "fire" being πῦρ.

[47] Sulphate of copper, probably, our Chalcopyrite, or yellow copper pyrites.

[48] See B. v. c. 35.

applied topically, they cause indurations to suppurate. They are employed also, in a crude state and pulverized, for the cure of scrofulous sores and boils. Some writers mention another kind of pyrites also. Those among them have the greatest affinity to fire which we distinguish as "live"[49] pyrites. They are the most ponderous of all, and are found remarkably useful for advance-guards when laying out encampments; for, on being struck with a nail or any other kind of stone, they emit a spark, which, received upon sulphur, dried fungus,[50] or leaves, produces a fire almost sooner than it could be named.

### CHAP. 31.—OSTRACITES; FOUR REMEDIES. AMIANTHUS; TWO REMEDIES.

The several varieties of ostracites[51] bear a resemblance to shells. They are used by way of substitute for pumice-stone, for smoothing the skin. Taken in drink, they arrest discharges of blood; and, applied topically with honey, they are curative of ulcerations and pains in the mamillæ.

Amianthus[52] resembles alumen[53] in appearance, and suffers no diminution from the action of fire. This substance effectually counteracts all noxious spells, those wrought by magicians in particular.

### CHAP. 32.—GEODES; THREE REMEDIES.

Geodes[54] is so called from its formation, it containing earth within. It is remarkably beneficial for the eyes, and is used for the cure of diseases of the testes and mamillæ.

### CHAP. 33.—MELITINUS; SIX REMEDIES.

The stone called "melitinus"[55] yields a liquid that is sweet,

[49] Or "quick," "vivos." Ajasson identifies these with the quartz agates that form our gun-flints, a Chalcedonic variety of Silica.

[50] Amadue, or German tinder.

[51] Fossil shells of oysters and bivalve mollusks, combined, probably, with Fahlunite or Hydrous Iolite.

[52] This is the most delicate variety of Asbestus, a kind of Hornblende: it presents the lustre of satin. As to Asbestus, see B. xix. c. 4, where Pliny has evidently taken it to be a vegetable production.

[53] See B. xxxv. c. 52.

[54] "Earthy" stone. These are either nodules of iron-stone, hollow in the centre, or else round, inorganic masses, hollow, and lined with crystals within. These latter are mostly of a silicious nature.

[55] It was, probably, a yellow, argillaceous earth, and it is more proba-

like honey. Bruised and incorporated with wax, it is curative of pituitous eruptions, spots upon the skin, and ulcerations of the fauces. It removes epinyctis[56] also, and, applied as a pessary, in wool, it alleviates pains in the uterus.

### CHAP. 34.—GAGATES: SIX REMEDIES.

Gagates[57] is a stone, so called from Gages, the name of a town and river in Lycia.[58] It is asserted, too, that at Leucolla[59] the sea throws it up, and that it is found over a space twelve stadia in extent. It is black, smooth, light, and porous, differs but little from wood in appearance,[59*] is of a brittle texture, and emits a disagreeable odour[60] when rubbed. Marks made upon pottery with this stone cannot be effaced. When burnt, it gives out a sulphureous smell; and it is a singular fact, that the application of water ignites it, while that of oil quenches it.[61] The fumes of it, burnt, keep serpents at a distance, and dispel hysterical affections: they detect a tendency also to epilepsy,[62] and act as a test of virginity.[63] A decoction of this stone in wine is curative of tooth-ache; and, in combination with wax, it is good for scrofula. The magicians, it is said, make use of gagates in the practice of what they call

ble that it derived its name from μέλι, "honey," in consequence of its colour than by reason of its supposed sweet juices. The Mellite, Mellitite, or Honey-stone of modern Mineralogy, also known as Mellate of Alumina, has its name from its honey-yellow colour. It is found in Thuringia, Moravia, and Bohemia; but most probably was unknown in the days of Pliny.

[56] See B. xx. cc. 6, 21.

[57] Our jet, which somewhat resembles cannel-coal, and is found in clay soils.

[58] See B. v. c. 28, where a place called "Gagæ" is mentioned. In Note 5 to that Chapter, "gagates" is erroneously rendered "agate."

[59] See B. v. c. 26.

[59*] This comparison is not inapt, as it is closely akin to Lignite, or brown coal.

[60] A bituminous and animal odour, Ajasson says, quite peculiar to itself.

[61] He has borrowed this erroneous assertion, probably, from Nicander, who, with Pliny, says the same of the "Thracian stone," which has not been identified, but is supposed to have been a sort of coal. See B. xxxiii. c. 30.

[62] This is, probably, the meaning of "sonticus morbus," a disease, which, according to the jurists, excused those affected with it, from attending in courts of justice.

[63] Albertus Magnus, De Mineral, B. ii., says that if it is given in water to a female, it will have a diuretic effect immediately, if she is not in a state of virginity, and that the contrary will be the case if she is.

axinomancy;[64] and they assure us that it will be sure not to burn, if the thing is about to happen as the party desires.

CHAP. 35.—SPONGITES: TWO REMEDIES.

The stone called "spongites" is found in sponges, and is a marine formation. By some persons it is called "tecolithos,"[65] from the circumstance that it is curative of affections of the bladder. Taken in wine, it breaks and disperses urinary calculi.

CHAP. 36.—PHRYGIAN STONE.

Phrygian stone is so called from the country which produces it, and is a porous mass like pumice. It is first saturated with wine, and then calcined, the fire being kept up with the bellows till the stone is brought to a red heat; which done, it is quenched in sweet wine. This operation is repeated three times. The only use made of it is for dyeing cloths.[66]

CHAP. 37. (20.)—HÆMATITES: FIVE REMEDIES. SCHISTOS: SEVEN REMEDIES.

Schistos and hæmatites[67] have a certain affinity between them. The latter is found in mines, and, when burnt, has just the colour[68] of minium.[69] It is calcined in the same manner as Phrygian stone, but is not quenched in wine. Adulterations of it are detected by the appearance of red veins in it, and by its comparative friability. It is marvellously useful as an application for bloodshot eyes, and, taken internally, it acts as a check upon female discharges. To patients vomiting blood, it is administered in combination with pomegranate-juice. It is very efficacious also for affections of the bladder; and it is taken with wine for the cure of wounds inflicted by serpents.

[64] See B. XXX. c. 5. According to Dalechamps, this was practised by placing the jet upon a hatchet at a red heat.

[65] "Stone-macerater." From τήκω, to "macerate," and λιθὸς, "a stone."

[66] Dioscorides says that it was found in Cappadocia also; and both he and Galen attribute to it certain medicinal properties. It was used either for colouring, or else, like fuller's earth, for taking the grease out of wool and cloth. Ajasson is inclined to think that it was either a volcanic scoria or a Peperite, also of volcanic origin.

[67] Or "blood-stone," mentioned already in Chapter 25 of this Book.

[68] He is evidently speaking here of the red peroxide of iron.

[69] Vermilion. See B. XXXIII. c. 37.

In all these cases the stone called "schistos"[70] is efficacious, though not in so high a degree as the other; the most serviceable being that which resembles saffron in colour. Applied with woman's milk, it is particularly useful for arresting discharges from the corners of the eyes,[71] and it is also very serviceable for reducing procidence of those organs. Such, at least, is the opinion of the authors who have most recently written on the subject.

CHAP. 38.—ÆTHIOPIC HÆMATITES. ANDRODAMAS; TWO REMEDIES. ARABIAN HÆMATITES. MILTITES OR HEPATITES. ANTHRACITES.

Sotacus, one of the most ancient writers, says, that there are five kinds of hæmatites, in addition to the magnet[72] so called. He gives the preference among them to that of Æthiopia,[73] a very useful ingredient in ophthalmic preparations and the compositions which he calls "panchresta,"[74] and good for the cure of burns. The second, he says, is called "androdamas,"[75] of a black[76] colour, remarkable for its weight and hardness, to which it owes its name, in fact, and found in Africa more particularly. It attracts silver, he says, copper, and iron, and is tested with a touchstone made of basanites.[77] It yields a liquid the colour of blood, and is an excellent remedy for diseases of the liver. The third kind that he mentions is the hæmatites[78] of Arabia, a mineral of equal hardness, and which with difficulty yields, upon the water-whetstone, a liquid sometimes approaching the tint of saffron. The fourth[79] kind, he says, is known as "hepa-

[70] Literally, "split" stone; so called, probably, from its laminated form. Ajasson identifies it with yellow or brown iron ore, known in Mineralogy as Limonite, or Brown Hematite.

[71] "Explendis oculorum lacunis."

[72] Mentioned in Chapter 25 of this Book.

[73] Mentioned also in Chapter 25. Probably Red peroxide of iron, in a massive form.

[74] "All-serviceable," or "all-heal."

[75] "Man-subduing."

[76] The colour of Specular iron, or red peroxide of iron, being of a dark steel-grey or iron-black, this is probably another variety of it. Ajasson thinks that it includes compact or massive red oxide of iron, and scaly red iron, or red iron froth, which leaves red marks upon the fingers.

[77] See Chapter 11 of this Book. Its alleged attraction of silver and copper is fabulous, no doubt.

[78] This is probably the Limonite, or Hydrous peroxide of iron, mentioned in the preceding Chapter. See Note 70 above.

[79] Identified by Ajasson with Red ochre, or Reddle, a red peroxide of iron, used for red crayons in drawing.

tites,"[80] while raw, and as "miltites"[81] when calcined; a substance good for burns, and more efficacious than rubrica[82] for all the purposes for which that mineral is employed. The fifth[83] variety is schistos; a substance which, taken internally, arrests hæmorrhoidal discharges. Upon the same authority, it is recommended to take any kind of hæmatites, fasting, in doses of three drachmæ, triturated in oil, for affections of the blood.[84]

The same author mentions also a kind of schistos which has no affinity to hæmatites, and to which he gives the name of "anthracites."[85] It is a native of Africa, he says, and is of a black colour. When rubbed upon a water-whetstone, it yields a black colour on the side which has adhered to the earth, and, on the opposite side, a saffron tint. He states also that it is a useful ingredient in ophthalmic preparations.

CHAP. 39. (21)—AËTITES. TAPHIUSIAN STONE. CALLIMUS.

The stone called aëtites[86] has a great reputation, in consequence of the name which it bears. It is found in the nests of eagles, as already mentioned in our Tenth Book.[87] There are always two of these stones found together, they say, a male stone and a female; and without them, it is said, the various eagles that we have described would be unable to propagate. Hence it is, too, that the young of the eagle are never more than two in number. There are four varieties of the aëtites: that of Africa is soft and diminutive, and contains in the interior—in its bowels as it were—a sweet, white, argillaceous earth. It is friable, and is generally thought to be of the female sex. The male stone, on the other hand, which is found in Arabia, is hard, and similar to a nut-gall in appearance; or else of a reddish hue, with a hard stone in the interior. The third kind is a stone found in the Isle of Cyprus, and resembles

[80] "Liver-stone." Not to be confounded with the Hepatite of modern Mineralogy, or Sulphate of Barytes. [81] "Spleen-stone."

[82] See B. XXXV. c. 14.

[83] Identified by Ajasson with Laminated protoxide of iron. It has probably an affinity to the variety noticed above, in Notes 70 and 78.

[84] Owing solely, in all probability, to its name, "blood-stone."

[85] Ajasson is at a loss to know whether this is our Anthracite, a non-bituminous coal, or some kind of bituminous coal. Delafosse takes it to be pit-coal.

[86] Or "eagle-stone." It is a Géodes, mentioned in Chapter 23 of this Book, a globular mass of clay iron-stone. Sometimes it is hollow within, and sometimes it encloses another stone, or a little water, or some mineral dust. [87] Chapter 4.

those of Africa in appearance, but is larger and flat, while the others are of a globular form: it contains a sand within, of a pleasing colour, and mixed with small stones; being so soft itself as to admit of being crushed between the fingers.

The fourth variety is known as the Taphiusian aëtites, and is found near Leucas,[88] at Taphiusa, a locality which lies to the right as you sail from Ithaca towards Cape Leucas. It is met with in the beds of rivers there, and is white and round; having another stone in the interior, the name given to which is "callimus:" none of the varieties of aëtites have a smoother surface than this. Attached to pregnant women or to cattle, in the skins of animals that have been sacrificed, these stones act as a preventive of abortion, care being taken not to remove them till the moment of parturition; for otherwise procidence of the uterus is the result. If, on the other hand, they are not removed at the moment when parturition is about to ensue, that operation of Nature cannot be effected.

### CHAP. 40.—SAMIAN STONE: EIGHT REMEDIES.

Samian stone[89] comes from the same island which produces the earth in praise of which we have spoken already.[90] It is useful for giving a polish to gold, and it is employed medicinally for the treatment of ulcerations of the eyes, combined with milk in manner already[91] described. It is good, too, for watery discharges of a chronic nature, from the eyes. Taken internally, it is useful for affections of the stomach, and it has the effect of dispelling vertigo and restoring the spirits when depressed. Some writers are of opinion that this stone may be administered with advantage for epilepsy and strangury; and it is employed as an ingredient in the restoratives known as "acopa."[92] The test of its purity is its weight and its whiteness. Some persons will have it that, worn as an amulet, it acts as a preventive of abortion.

### CHAP. 41.—ARABIAN STONE; SIX REMEDIES.

Arabian[93] stone resembles ivory in appearance; and in a

[88] See B. iv. c. 2.
[89] A kind of pumice, Ajasson thinks, or porous feldspathic scoria from volcanos.
[90] In B. xxxv. c. 53.
[91] In Chapter 37 of this Book.
[92] See B. xxiii. cc. 45, 80.
[93] Probably of a similar nature to the Samian stone.

calcined state it is employed as a dentifrice.[94] It is particularly useful for the cure of hæmorrhoidal swellings, applied either in lint or by the aid of linen pledgets.

CHAP. 42.—PUMICE; NINE REMEDIES.

And here, too, I must not omit to give some account of pumice.[95] This name is very generally given, it is true, to those porous pieces of stone, which we see suspended in the erections known as "musæa,"[96] with the view of artificially giving them all the appearance of caverns. But the genuine pumice-stones, that are in use for imparting smoothness to the skin of females, and not females only, but men as well, and, as Catullus[97] says, for polishing books, are found of the finest quality in the islands of Melos and Nisyros[98] and in the Æolian Isles. To be good, they should be white, as light as possible, porous and dry in the extreme, friable, and free from sand when rubbed.

Considered medicinally, pumice is of a resolvent and desiccative nature; for which purpose it is submitted to calcination, no less than three times, on a fire of pure charcoal, it being quenched as often in white wine. It is then washed, like cadmia,[99] and, after being dried, is put by for keeping, in a place as free from damp as possible. In a powdered state, pumice is used in ophthalmic preparations more particularly, and acts as a lenitive detergent upon ulcerations of the eyes. It also makes new flesh upon cicatrizations of those organs, and removes all traces of the marks. Some prefer, after the third calcination, leaving the pumice to cool, and then triturating it in wine. It is employed also as an ingredient in emollient poultices, being extremely useful for ulcerations on the head and generative organs; dentifrices, too, are prepared from it. According to Theophrastus,[1] persons when drinking for a wager are in the habit[2] of taking powdered pumice first; but they run great risk, he says, if they fail to swallow the whole draught of wine at once; it being of so refrigerative a nature

[94] Pumice is still used as the basis of a dentifrice, but it destroys the enamel of the teeth.

[95] See Note 90 above.

[96] Or "temples of the Muses:" evidently grottos in the present instance.

[97] In allusion to the line, "Aridâ modo pumice expolitum"—"Just polished with dry pumice-stone." Ep. I. 1. 2. Both the backs of books and the parchment used for writing were rubbed with pumice.

[98] See B. v. c. 36.

[99] See B. xxxiv. c. 22.

[1] Hist. B. ix. c. 18.

[2] As a preventive of vomiting.

that grape-juice[3] will absolutely cease to boil if pumice is put into it.

CHAP. 43. (22.)—STONES FOR MORTARS USED FOR MEDICINAL AND OTHER PURPOSES. ETESIAN STONE. THEBAIC STONE. CHALAZIAN STONE.

Authors, too, have paid some attention to the stones in use for mortars, not only those employed for the trituration of drugs and pigments, but for other purposes as well. In this respect they have given the preference to Etesian[4] stone before all others, and, next to that, to Thebaic stone, already mentioned[5] as being called "pyrrhopœcilon," and known as "psaranus" by some. The third rank has been assigned to chrysites,[6] a stone nearly allied to Chalazian[7] stone. For medicinal purposes, however, basanites[8] has been preferred, this being a stone that remits no particles from its surface.[9]

Those stones which yield a liquid, are generally looked upon as good for the trituration of ophthalmic preparations; and hence it is, that the Æthiopian stone is so much in request for the purpose. Tænarian stone, they say, Phœnician stone, and hæmatites, are good for the preparation of those medicinal compositions in which saffron forms an ingredient; but they also speak of another Tænarian stone, of a dark colour, which, like Parian[10] stone, is not so well adapted for medicinal purposes. We learn from them, too, that Egyptian alabastrites,[11] or white ophites,[12] from the virtues inherent in them, are considered still better adapted for these purposes than the kinds last mentioned. It is this kind of ophites, too, from which vessels, and casks even, are made.

[3] "Musta." Grape-juice in the process of being made into wine.

[4] Delafosse suggests that this may have been grey-spotted granite. The name is doubtful, as "Edesian" and Ephesian" are other readings.

[5] In Chapter 13 of this Book.

[6] "Golden stone." A variety, perhaps, of the Thebaic stone with gold spots, mentioned in Chapter 13 of this Book.

[7] Possibly so called from Χάλαζα, "hail," it being, perhaps, a granite with spots like hailstones.

[8] See Chapters 11 and 38 of this Book.

[9] In consequence of its extreme hardness.

[10] Phœnician stone and Tænarian stone do not appear to have been identified. Parian stone may probably have been white Parian marble.

[11] See Chapter 12 of this Book.

[12] Serpentine. See Chapters 11 and 30.

CHAP. 44.—STONE OF SIPHNOS. SOFT STONES.

At Siphnos,[13] there is a kind of stone[14] which is hollowed and turned in the lathe, for making cooking-utensils and vessels for keeping provisions; a thing too, that, to my own knowledge,[15] is done with the green stone[16] of Comum[17] in Italy. With reference, however, to the stone of Siphnos, it is a singular fact, that, when heated in oil, though naturally very soft, it becomes hard and black; so great a difference is there in the qualities of stone.

There are some remarkable instances, too, beyond the Alps, of the natural softness of some kinds of stone. In the province of the Belgæ, there is a white stone[18] which admits of being cut with the saw that is used for wood, and with greater facility even. This stone is used as a substitute for roof-tiles and gutter-tiles, and even for the kind of roofing known as the pavonaceous[19] style, if that is preferred. Such are the stones that admit of being cut into thin slabs.

CHAP. 45.—SPECULAR STONES.

As to specular[20] stone—for this, too, is ranked as one of the stones—it admits of being divided with still greater facility, and can be split into leaves as thin as may be desired. The province of Nearer Spain used formerly to be the only one that furnished it—not, indeed, the whole of that country, but a district extending for a hundred miles around the city of Segobrica.[21] But at the present day, Cyprus, Cappadocia, and Sicily, supply us with it; and, still more recently, it has been discovered in Africa: they are all, however, looked upon as inferior to the stone which comes from Spain. The sheets

[13] See B. iv. cc. 22, 23.

[14] Ajasson identifies it with Ollar stone, talc, or soap-stone, a hydrous silicate of magnesia, and nearly allied to the Ophites of Chapters 11 and 30.

[15] He being a native of that part of Italy.

[16] The Green Colubine Ollar stone, or soap-stone of Italy.

[17] See B. iii. c. 21.

[18] Identified by Brotero with our Free-stone or grit-stone.

[19] So called from its resemblance to the spots on a peacock's tail. He alludes, probably, to the mode of roofing with tiles cut in the form of scales, still much employed on the continent, and in Switzerland more particularly.

[20] Or "Mirror-stone." Transparent Selenite or gypsum; a sulphate of lime.

[21] Now Segorba, in Valentia.

from Cappadocia are the largest in size; but then they are clouded. This stone is to be found also in the territory of Bononia,[22] in Italy; but in small pieces only, covered with spots and encrusted in a bed of silex, there being a considerable affinity, it would appear, in their nature.

In Spain, the specular-stone is extracted from shafts sunk in the earth to a very considerable depth; though it is occasionally to be found just beneath the surface, enclosed in the solid rock, and extracted without difficulty, or else cut away from its bed. In most cases, however, it admits of being dug up, being of an isolated nature, and lying in pieces, like rag-stone, but never known as yet to exceed five feet in length. It would appear that this substance is originally a liquid, which, by an animating power in the earth, becomes congealed like crystal; and it is very evident that it is the result of petrifaction, from the fact that, when animals have fallen into the shafts from which it is extracted, the marrow of their bones becomes transformed into stone of a similar nature, by the end of a single winter. In some cases, too, it is found of a black colour: but the white stone has the marvellous property, soft as it is known to be, of resisting the action of the sun and of cold. Nor will it, if it is only protected from accidents, become deteriorated by lapse of time, a thing that is so generally the case with many other kinds of stone that are used for building purposes. The shavings, too, and scales of this stone, have been used of late for another purpose; the Circus Maximus having been strewed with them at the celebration of the games, with the object of producing an agreeable whiteness.

### CHAP. 46.—PHENGITES.

During the reign of Nero, there was a stone found in Cappadocia, as hard as marble, white, and transparent even in those parts where red veins were to be seen upon it; a property which has obtained for it the name of "phengites."[23] It was with this stone[24]

[22] Ajasson is of opinion that various kinds of mica and talc are the minerals here alluded to.

[23] From φεγγὸς, "brightness." Beckmann is of opinion that this was a calcareous or gypseous spar (Hist. Inv. Vol. II. p. 66); but Ajasson seems to think that it was very similar to Parian marble, which was sometimes called by this name.

[24] This is more likely to apply to a white marble than to a calcareous or

that Nero rebuilt the Temple of Fortune, surnamed Seia,[25] originally consecrated by King Servius, enclosing it within the precincts of his Golden Palace.[26] Hence it was that, even when the doors were closed, there was light in the interior during the day; not transmitted from without, as would be the case through a medium of specular-stone, but having all the appearance of being enclosed within[27] the building.

In Arabia, too, according to Juba, there is a stone, transparent like glass, which is used for the same purposes as specular-stone.

### CHAP. 47.—WHETSTONES.

We must now pass on to the stones that are employed for handicrafts, and, first of all, whetstones for sharpening iron. Of these stones there are numerous varieties; the Cretan stones having been long held in the highest estimation, and the next best being those of Mount Taygetus, in Laconia; both of which are used as hones, and require oil. Among the water-whetstones, the first rank belonged to those of Naxos, and the second to the stones of Armenia, both of them already[28] mentioned. The stones of Cilicia are of excellent quality, whether used with oil or with water; those of Arsinöe,[29] too, are very good, but with water only. Whetstones have been found also in Italy, which with water give a remarkably keen edge; and from the countries beyond the Alps, we have the whetstones known as "passernices."[30]

To the fourth class belong the hones which give an edge by the agency of human saliva, and are much in use in barbers' shops. They are worthless, however, for all other purposes, in consequence of their soft and brittle nature: those from the district of Laminium,[31] in Nearer Spain, are the best of the kind.

gypseous spar. Suetonius says, c. 14, that Domitian, when he suspected that plots were forming against him, caused the porticos in which he walked to be lined with Phengites, which by its reflection showed what was going on behind his back.

[25] See B. xviii. c. 2.

[26] See Chapter 24 of this Book.

[27] Beckmann says, in reference to this passage, supposing that a kind of *spar* is meant by the word *phengites*—"It is probable that the openings of the walls of the building where the windows used to be, were in this instance filled up with *phengites*, which, by admitting a faint light, prevented the place from being dark, even when the doors were shut."—Hist. Inv. Vol. II. p. 66. *Bohn's Edition.*

[28] In Chapter 10 of this Book.

[29] See B. v. cc. 22, 35, for two places of this name.

[30] A Celtic word, probably

[31] See B. iii. c. 2.

### CHAP. 48.—TOPHUS.

Among the multitude of stones which still remain undescribed, there is tophus;[32] a material totally unsuited for building purposes, in consequence of its perishableness. Still, however, there are some localities which have no other, Carthage, in Africa, for example. It is eaten away by the emanations from the sea, crumbled to dust by the wind, and shattered by the pelting of the rain: but human industry has found the means of protecting walls of houses built of it, with a coating of pitch, as a plaster of lime would corrode it. Hence it is, that we have the well-known saying, "that the Carthaginians use pitch[33] for their houses and lime[34] for their wines," this last being the method used by them in the preparation of their must.

In the territories of Fidenæ and Alba, in the vicinity of Rome, we find other soft kinds of stone; and, in Umbria and Venetia, there is a stone[35] which admits of being cut with the teeth of a saw. These stones are easy to be worked, and are capable of supporting a considerable weight, if they are only kept sheltered from the weather. Rain, however, frost, and dew, split them to pieces, nor can they resist the humidity of the sea-air. The stone[36] of Tibur can stand everything except heat, which makes it crack.

### CHAP. 49.—THE VARIOUS KINDS OF SILEX.

The black silex[37] is in general the best; but in some localities, it is the red, and occasionally the white; as in the Anician quarries at Tarquinii, near Lake Volsinius,[38] for example, and those at Statonia,[39] the stone of which is proof against fire even.[40] These stones, sculptured for monumental

[32] Identical, probably, with the Tufa of modern Mineralogy, which thence derives its name, a Carbonate of lime.

[33] Thus reversing the order of things with the Romans, who put the lime on their houses, and the pitch in their wines. See B. xiv. cc. 3, 24, 25. [34] See B. xiv. c. 24. [35] A white tufa, Vitruvius says, B. i. c. 7.

[36] It was in reference, possibly, to this stone that Cicero made the remark, mentioned in Chapter 5 of this Book; the heat of Chios being so great, perhaps, that the Tiburtine stone could not have endured it.

[37] A general name for Silica, Flint, or Quartz, and the several varieties.

[38] See B. iii. c. 8. [39] See B. ii. c. 96, B. iii. c. 9, and B. xiv. c. 8.

[40] Ajasson thinks that Travertine is meant; a tufa, or carbonate of lime, which is common in Tuscany.

purposes, are subject to no deterioration by lapse of time: moulds, too, are made from them, for the purpose of fusing copper. There is a green silex, also, which offers a most powerful resistance to the action of fire, but is never found in any large quantities, and, in all cases, in an isolated form, and not as a constituent part of solid rock. Of the other kinds, the pale silex is but rarely used for erections: being of globular form, it is not liable to injury, but at the same time it is insecure for building purposes, unless it is well braced and tightly held together. Nor yet does river silex offer any greater security, for it always has the appearance of being wet.

### CHAP. 50.—OTHER STONES USED FOR BUILDING.

When the nature of stone is doubtful, the proper precaution is, to quarry it in summer, and not to use it for building before the end of a couple of years, leaving it in the meantime to be well seasoned by the weather. The slabs which have been damaged will be found to be better suited for the foundations under ground: while those, on the other hand, which have remained uninjured, may be employed with safety, and exposed to the open air even.

### CHAP. 51.—THE VARIOUS METHODS OF BUILDING.

The Greeks construct party-walls, resembling those of brickwork, of hard stone or of silex, squared. This kind of stonework is what they call "isodomon,"[41] it being "pseudisodomon"[42] when the wall is built of materials of unequal dimensions. A third kind of stonework is called "emplecton,"[43] the two exteriors only being made with regularity, the rest of the material being thrown in at random. It is necessary that the stones should lie over one another alternately, in such a way that the middle of one stone meets the point of junction of the two below it; and this, too, in the middle of the wall, if possible; but if not, at all events, at the sides. When the middle of the wall is filled up with broken stones, the work is known as "diatoichon."[44]

41 "Built of stones of equal size."

42 "Built of stones of unequal sizes."

43 "Filled up work," apparently.

44 The reading is very doubtful here: for the word seems to mean, in Greek, "From one wall to another." "Diamicton"—"Mixed up," is another reading.

The reticulated[45] kind of building, which is mostly in use at Rome, is very liable to crack.[46] All building should be done by line and rule, and ought to be strictly on the perpendicular.

### CHAP. 52. (23.)—CISTERNS.

Cisterns should be made of five parts of pure, gravelly, sand, two of the very strongest quicklime, and fragments of silex not exceeding a pound each in weight; when thus incorporated, the bottom and sides should be well beaten with iron rammers. The best plan, too, is to have the cisterns double; so that all superfluities may settle in the inner cistern, and the water filter through, as pure as possible, into the outer one.

### CHAP. 53.—QUICK-LIME.

Cato[47] the Censor disapproves of lime prepared from stones of various colours: that made of white stone is the best. Lime prepared from hard stone is the best for building purposes, and that from porous stone for coats of plaster. For both these purposes, lime made from silex is equally rejected. Stone that has been extracted from quarries furnishes a better lime than that collected from the beds of rivers; but the best of all is the lime that is obtained from the molar-stone,[48] that being of a more unctuous nature than the others. It is something truly marvellous, that quick-lime, after the stone has been subjected to fire, should ignite on the application of water!

### CHAP. 54.—THE VARIOUS KINDS OF SAND. THE COMBINATIONS OF SAND WITH LIME.

There are three kinds of sand: fossil[49] sand, to which one-fourth part of lime should be added;[50] river sand; and sea sand; to both of which last, one third of lime should be added. If, too, one third of the mortar is composed of bruised earthenware, it will be all the better. Fossil sand is found in the districts that lie between the Apennines and the Padus, but not in the parts beyond sea.

[45] Where the outer face of each stone forms an exact square; the pointings consequently having a netlike or reticulated appearance.
[46] The vertical pointings or junctures lying one over the other.
[47] De Re Rust. c. 38. [48] See Chapters 29 and 30 of this Book.
[49] To which Pozzuolane belongs. [50] For making mortar.

CHAP 55.—DEFECTS IN BUILDING. PLASTERS FOR WALLS.

The great cause of the fall of so many buildings in our City, is, that through a fraudulent abstraction of the lime, the rough work is laid without anything to hold it together. The older, too, the mortar is, the better it is in quality. In the ancient laws for the regulation of building, no contractor was to use mortar less than three months old; hence it is, that no cracks have disfigured the plaster coatings of their walls. These stuccos will never present a sufficiently bright surface, unless there have been three layers of sanded mortar, and two of marbled[51] mortar upon that. In damp localities and places subject to exhalations from the sea, it is the best plan to substitute ground earthenware mortar for sanded mortar. In Greece, it is the practice, first to pound the lime and sand used for plastering, with wooden pestles in a large trough. The test by which it is known that marbled mortar has been properly blended, is its not adhering to the trowel; whereas, if it is only wanted for white-washing, the lime, after being well slaked with water, should stick like glue. For this last purpose, however, the lime should only be slaked in lumps.

At Elis, there is a Temple of Minerva, which was pargetted, they say, by Panænus, the brother of Phidias, with a mortar that was blended with milk and saffron:[52] hence it is, that, even at the present day, when rubbed with spittle on the finger, it yields the smell and flavour of saffron.

CHAP. 56.—COLUMNS. THE SEVERAL KINDS OF COLUMNS.

The more closely columns are placed together, the thicker they appear to be. There are four different kinds of pillars. Those of which the diameter at the foot is one-sixth part of the height, are called Doric. When the diameter is one-ninth, they are Ionic; and when it is one-seventh, Tuscan. The proportions in the Corinthian are the same as those of the Ionic; but they differ in the circumstance that the Corinthian capitals are of the same height as the diameter at the foot, a thing that gives them a more slender appearance; whereas, in the Ionic column, the height of the capital is only one-third of the diameter at the foot. In

[51] Pounded marble mixed with quicklime.

[52] "Lacte et croco" appears to be a preferable reading to "late e croco," as given by the Bamberg MS.

ancient times the rule was, that the columns should be one-third of the breadth of the temple in height.

It was in the Temple of Diana, at Ephesus, as originally built, that spirals[53] were first placed beneath, and capitals added: and it was determined that the diameter of the shafts should be one-eighth of their height, and that the spirals should be one-half of the diameter in height, the upper extremity of the shaft being one-seventh less in diameter than the foot. In addition to these columns, there are what are called "Attic" columns, quadrangular, and with equal sides.

### CHAP. 57. (24.)—FIVE REMEDIES DERIVED FROM LIME.

Lime is also employed very extensively in medicine. For this purpose, fresh lime is selected, which has not been slaked with water. . Its properties are caustic, resolvent, and attractive; and it prevents serpiginous ulcers from spreading, being incorporated with vinegar and oil of roses, for the purpose. When this has been effected, it is tempered with wax and oil of roses, and applied to promote cicatrization. In combination with honey, and liquid resin, or hogs' lard, lime is curative of sprains and scrofulous sores.

### CHAP. 58.—MALTHA.

Maltha[54] is a cement prepared from fresh lime; lumps of which are quenched in wine, and then pounded with hogs' lard and figs, both of them, mollifying substances.[55] It is the most tenacious of all cements, and surpasses stone in hardness. Before applying the maltha, the substance upon which it is used must be well rubbed with oil.

[53] It seems difficult to understand whether by the word "spiræ" he means astragals, or bases. It would almost appear, by the use of the word "subditæ," that it is "bases" for the shafts. It is just possible, however, that the meaning may be that the "spiræ" were placed *beneath* the capitals which were added.

[54] A different thing altogether from the Maltha or Pissasphalt of B. ii. c. 108. Festus describes it as a mixture of pitch and wax; and Palladius, in B. i. c. 17, speaks of it as being composed of tar, grease, and lime boiled; and in c. 35 he describes Maltha caldaria as a mixture of hammoniacum, figs, tow, tar, and melted suet. It was probably a general name for several kinds of cement. Heineccius says that it was employed for sealing, but on what authority does not appear. See Beckmann, Hist. Inv. Vol. I. p. 141. *Bohn's Edition.*

[55] This is perhaps the meaning of "duplici lenimento." The reading, however, is doubtful.

### CHAP. 59.—GYPSUM.

Gypsum[56] has a close affinity with limestone, and there are numerous varieties of it. One kind is prepared from a calcined[57] stone, as in Syria, and at Thurii, for example. In Cyprus and at Perrhæbia,[58] gypsum is dug out of the earth, and at Tymphæa[59] it is found just below the level of the soil. The stone that is calcined for this purpose, ought to be very similar to alabastrites,[60] or else of a grain like that of marble. In Syria, they select the hardest stones for the purpose, and calcine them with cow-dung, to accelerate the process. Experience has proved, however, that the best plaster of all is that prepared from specular-stone,[61] or any other stone that is similarly laminated. Gypsum, when moistened, must be used immediately, as it hardens with the greatest rapidity; it admits, however, of being triturated over again, and so reduced to powder. It is very useful for pargetting, and has a pleasing effect when used for ornamental figures and wreaths in buildings.

There is one remarkable fact connected with this substance; Caius Proculeius,[62] an intimate friend of the Emperor Augustus, suffering from violent pains in the stomach, swallowed gypsum, and so put an end to his existence.[63]

### CHAP. 60. (25.)—PAVEMENTS. THE ASAROTOS ŒCOS.

Pavements are an invention of the Greeks, who also practised the art of painting them, till they were superseded by mosaics.[64] In this last branch of art, the highest excellence has been attained by Sosus,[65] who laid, at Pergamus, the mosaic pavement known as the "Asarotos œcos;"[66] from the fact that he there represented, in small squares of different colours, the remnants of a banquet lying upon the pavement, and other things which are usually swept away with the broom,

[56] The name now given to Sulphate of lime, including the varieties of Alabaster and Selenite. Plaster of Paris is prepared from it.

[57] The method of preparing plaster of Paris. [58] See B. iv. c. 3.

[59] See B. iv. c. 3.

[60] The same thing, strictly speaking. See Chapter 12 of this Book.

[61] See Chapter 45 of this Book. [62] See B. vii. c. 46.

[63] Dioscorides says, B. v. c. 134, that, taken internally, it produces suffocation.

[64] "Lithostrota."

[65] His age and country are unknown.

[66] "The house that has no sweeping."

they having all the appearance of being left there by accident. There is a dove also, greatly admired, in the act of drinking, and throwing the shadow of its head upon the water; while other birds are to be seen sunning and pluming themselves, on the margin of a drinking-bowl.

### CHAP. 61.—THE FIRST PAVEMENTS IN USE AT ROME.

The first pavements, in my opinion, were those now known to us as barbaric and subtegulan[67] pavements, a kind of work that was beaten down with the rammer: at least if we may form a judgment from the name[68] that has been given to them. The first diamonded[69] pavement at Rome was laid in the Temple of Jupiter Capitolinus, after the commencement of the Third Punic War. That pavements had come into common use before the Cimbric War, and that a taste for them was very prevalent, is evident from the line of Lucilius—

"With checquered emblems like a pavement marked."[70]

### CHAP. 62.—TERRACE-ROOF PAVEMENTS.

The Greeks have also invented terrace-roof[71] pavements, and have covered their houses with them; a thing that may easily be done in the hotter climates, but a great mistake in countries where the rain is apt to become congealed. In making these pavements, the proper plan is to begin with two layers of boards, running different ways, and nailed at the extremities, to prevent them from warping. Upon this planking a rough-work must be laid, one-fourth of which consists of pounded pottery: and upon this, another bed of rough-work, two-fifths composed of lime, a foot in thickness, and well beaten down with the rammer. The nucleus[72] is then laid down, a bed six fingers in depth; and upon that, large square stones, not less than a

67 "Subtegulanea."—"Under cover;" in contradistinction to the "subdialia" of next Chapter.

68 "Pavimentum," from "pavio," to "beat down."

69 "Scutulatum."—Having figures in the shape of a lozenge or rhombus.

70 The line is,

"Arte pavimenti atque emblemate vermiculato;"

literary compositions being compared by him to the artificial construction of a pavement.

71 "Subdialia;" more literally, "open-air pavements."

72 Or "kernel;" so called because it lay in the middle. Vitruvius says that it was composed of one part lime, and three parts pounded pottery.

couple of fingers in thickness; an inclination being carefully observed, of an inch and a half to every ten feet. This done, the surface is well rubbed down with a polishing stone. The general opinion is, that oak[73] should never be used for the planking, it being so very liable to warp; and it is considered a good plan to cover the boards with a layer of fern or chaff, that they may be the better able to resist the action of the lime. It is necessary, too, before putting down the planking, to underset it with a bed of round pebbles. Wheat-ear[74] tesselated pavements are laid down in a similar manner.

### CHAP. 63.—GRÆCANIC PAVEMENTS.

We must not omit here one other kind of pavement, that known as the "Græcanic." The ground is well rammed down, and a bed of rough work, or else broken pottery, is then laid upon it. Upon the top of this, a layer of charcoal is placed, well trodden down with a mixture of sand, lime, and ashes; care being taken, by line and rule, to give it a uniform thickness of half a foot. The surface then presents the ordinary appearance of the ground; but if it is well rubbed with the polishing-stone, it will have all the appearance of a black pavement.

### CHAP. 64.—AT WHAT PERIOD MOSAIC PAVEMENTS WERE FIRST INVENTED. AT WHAT PERIOD ARCHED ROOFS WERE FIRST DECORATED WITH GLASS.

Mosaic[75] pavements were first introduced in the time of Sylla; at all events, there is still in existence a pavement, formed of small segments, which he ordered to be laid down in the Temple of Fortune, at Prænestè. Since his time, these mosaics have left the ground for the arched roofs of houses, and they are now made of glass. This, however, is but a recent invention; for there can be no doubt that, when Agrippa ordered the earthenware walls of the hot baths, in the Thermæ which he was building at Rome, to be painted in encaustic, and had the other parts coated with pargetting, he

[73] "Quercus."

[74] "Spicata testacea." These pavements were probably so called because the bricks were laid at angles to each other (of about forty-five degrees), like the grains in an ear of wheat; or like the spines projecting from either side of the back-bone of a fish.

[75] "Lithostrota."

would have had the arches decorated with mosaics in glass, if the use of them had been known; or, at all events, if from the walls of the Theatre of Scaurus, where it figured, as already[76] stated, glass had by that time come to be used for the arched roofs of apartments. It will be as well, therefore, to give some account, also, of glass.

### CHAP. 65. (26.)—THE ORIGIN OF GLASS.

In Syria there is a region known as Phœnice,[77] adjoining to Judæa, and enclosing, between the lower ridges of Mount Carmelus, a marshy district known by the name of Cendebia. In this district, it is supposed, rises the river Belus,[78] which, after a course of five miles, empties itself into the sea near the colony of Ptolemaïs. The tide of this river is sluggish, and the water unwholesome to drink, but held sacred for the observance of certain religious ceremonials. Full of slimy deposits, and very deep, it is only at the reflux of the tide that the river discloses its sands; which, agitated by the waves, separate themselves from their impurities, and so become cleansed. It is generally thought that it is the acridity of the sea-water that has this purgative effect upon the sand, and that without this action no use could be made of it. The shore upon which this sand is gathered is not more than half a mile in extent; and yet, for many ages, this was the only spot that afforded the material for making glass.

The story is, that a ship, laden with nitre,[79] being moored upon this spot, the merchants, while preparing their repast upon the sea-shore, finding no stones at hand for supporting their cauldrons, employed for the purpose some lumps of nitre which they had taken from the vessel. Upon its being subjected to the action of the fire, in combination with the sand of the sea-shore, they beheld transparent streams flowing forth of a liquid hitherto unknown: this, it is said, was the origin of glass.[80]

[76] In Chapter 24 of this Book.

[77] See B. v. c. 17.

[78] See B. v. c. 19.

[79] A mineral alkali, Beckmann thinks; for it could not possibly be our saltpetre, he says. See B. xxxi. c. 46.

[80] Beckmann discredits this story, because sand, he says, is not so easily brought to a state of fusion. Hist. Inv. Vol. II. p. 496. *Bohn's Edition.*

CHAP. 66.—THE VARIOUS KINDS OF GLASS, AND THE MODE OF MAKING IT.

In process of time, as human industry is ingenious in discovering, it was not content with the combination of nitre, but magnet-stone[81] began to be added as well; from the impression that it attracts liquefied[82] glass as well as iron. In a similar manner, too, brilliant stones of various descriptions came to be added in the melting, and, at last, shells and fossil sand. Some authors tell us, that the glass of India is made of broken crystal, and that, in consequence, there is none that can be compared to it.

In fusing it, light and dry wood is used for fuel, Cyprian copper and nitre being added to the melting, nitre of Ophir[83] more particularly. It is melted, like copper, in contiguous furnaces, and a swarthy mass of an unctuous appearance is the result. Of such a penetrating nature is the molten glass, that it will cut to the very bone any part of the body which it may come near, and that, too, before it is even felt. This mass is again subjected to fusion in the furnace, for the purpose of colouring it; after which, the glass is either blown into various forms, turned in a lathe, or engraved[84] like silver. Sidon was formerly famous for its glass-houses, for it was this place that first invented[85] mirrors.

[81] "Magnes lapis." See B. xxxiv. c. 42, and Chapter 25 of this Book. Beckmann is of opinion that an ore of Manganese is meant, a substance which has a resemblance to the magnet, and is of the greatest utility in making glass. Hist. Inv. Vol. II. p. 237.

[82] This appears to be the meaning of "Quoniam in se liquorem vitri quoque ut ferrum trahere creditur."

[83] In the description given by Isidorus in the "Origines," which in other respects is similar, these words are omitted, and it is possible that they are a gloss by some one who was better acquainted with the Old Testament than with Pliny. On the other hand, as Sillig remarks, the Phœnicians may, at an early period, have imported into Greece a substance which they called "nitre of Ophir."

[84] See Beckmann, Hist. Inv. Vol. II. p. 84.

[85] "Excogitaverat." Beckmann would seem to give this word the force only of "thought of," for he gives it as his opinion that attempts were made at Sidon to form glass mirrors, but that the experiments had not completely succeeded. "Had this invention formed an epoch in the art of making mirrors, Pliny, in another place (B. xxxiii. c. 45), where he describes the various improvements of it so fully, would not have omitted it: but of those experiments he makes no further mention." He also expresses an opinion that the Sidonian mirrors consisted of dark-coloured

Such was the ancient method of making glass: but, at the present day, there is found a very white sand for the purpose, at the mouth of the river Volturnus, in Italy. It spreads over an extent of six miles, upon the sea-shore that lies between Cumæ and Literuum, and is prepared for use by pounding it with a pestle and mortar; which done, it is mixed with three parts of nitre, either by weight or measure, and, when fused, is transferred to another furnace. Here it forms a mass of what is called "hammonitrum;" which is again submitted to fusion, and becomes a mass of pure, white, glass. Indeed, at the present day, throughout the Gallic and Spanish provinces even, we find sand subjected to a similar process. In the reign of Tiberius, it is said, a combination was devised which produced a flexible[86] glass; but the manufactory of the artist was totally destroyed, we are told, in order to prevent the value of copper, silver, and gold, from becoming depreciated.[87] This story, however, was, for a long time, more widely spread than well authenticated. But be it as it may, it is of little consequence; for, in the time of the Emperor Nero, there was a process discovered, by which two small glass cups were made, of the kind called "petroti,"[88] the price of which was no less than six thousand sesterces!

### CHAP 67.—OBSIAN GLASS AND OBSIAN STONE.

Among the various kinds of glass, we may also reckon Obsian glass, a substance very similar to the stone[89] which Obsius discovered in Æthiopia. This stone is of a very dark colour, and sometimes transparent; but it is dull to the sight, and reflects, when attached as a mirror to walls, the shadow of the object rather than the image. Many persons use it[90]

glass, resembling obsidian stone."—Hist. Inv. Vol. II. pp. 69, 70. *Bohn's Edition.*

[86] Knowles says, in his *Turkish History*, p. 1273, that in 1610, among other rare presents sent to the King of Spain from the Sophy of Persia, there were six drinking-glasses, made of malleable glass so exquisitely tempered that they could not be broken.

[87] Dion Cassius and Suetonius tell a similar story; and, according to one account, Tiberius ordered the artist to be put to death.

[88] This reading is doubtful. It would appear to mean "stone handled." Another reading is "pterotos," "with winged handles."

[89] Volcanic glass, feldspar in a more or less pure state, our Obsidian, is probably meant; a word derived from the old reading, Obsidius, corrected by Sillig to *Obsius*.

[90] He is speaking of the stone, not the glass that resembled it.

for jewellery, and I myself have seen solid statues[91] in this material of the late Emperor Augustus, of very considerable thickness. That prince consecrated, in the Temple of Concord, as something marvellous, four figures of elephants made of Obsian stone. Tiberius Cæsar, too, restored to the people of Heliopolis, as an object of ceremonial worship, an image in this stone, which had been found among the property left by one of the præfects of Egypt. It was a figure of Menelaüs; a circumstance which goes far towards proving that the use of this material is of more ancient date than is generally supposed, confounded as it is at the present day with glass, by reason of its resemblance. Xenocrates says that Obsian stone is found in India also, and in Samnium in Italy; and that it is a natural product of Spain, upon the coasts which border on the Ocean.[92]

There is an artificial Obsian stone, made of coloured glass for services for the table; and there is also a glass that is red all through, and opaque, known as "hæmatinum."[93] A dead white glass, too, is made, as also other kinds in imitation of murrhine[94] colour, hyacinthine, sapphire, and every other tint: indeed, there is no material of a more pliable[95] nature than this, or better suited for colouring. Still, however, the highest value is set upon glass that is entirely colourless and transparent, as nearly as possible resembling crystal, in fact. For drinking-vessels, glass has quite superseded the use of silver and gold; but it is unable to stand heat unless a cold liquid is poured in first. And yet, we find that globular glass vessels, filled with water, when brought in contact with the rays of the sun,[96] become heated to such a degree as to cause articles of clothing to ignite. When broken, too, glass admits of being joined by the agency of heat; but it cannot

[91] A thing very difficult to be done, as Beckmann observes, by reason of its brittleness.

[92] The present Portugal.

[93] "Blood-red" glass.

[94] See B. xxxvii. cc. 7, 8, 11. This glass was probably of an opal colour, like porcelain.

[95] This passage is commented upon by Beckmann, Vol. II. p. 75, in connexion with a similar passage in Isidorus, Orig., which is probably corrupt.

[96] See B. xxxvii. c. 10. He was not aware, apparently, that in such case they act as convex burning-glasses, and that ice even may be similarly employed.

be wholly fused without being pulverized into small fragments,[97] as we see done in the process of making the small checquers, known as "abaculi," for mosaic work; some of which are of variegated colours, and of different shapes. If glass is fused with sulphur, it will become as hard as stone.

CHAP 68. (27.)—MARVELLOUS FACTS CONNECTED WITH FIRE.

Having now described all the creations of human ingenuity, reproductions, in fact, of Nature by the agency of art, it cannot but recur to us, with a feeling of admiration, that there is hardly any process which is not perfected through the intervention of fire. Submit to its action some sandy soil, and in one place it will yield glass, in another silver, in another minium, and in others, again, lead and its several varieties, pigments, and numerous medicaments. It is through the agency of fire that stones[98] are melted into copper; by fire that iron is produced, and subdued to our purposes; by fire that gold is purified; by fire, too, that the stone is calcined, which is to hold together the walls of our houses.

Some materials, again, are all the better for being repeatedly submitted to the action of fire; and the same substance will yield one product at the first fusion, another at the second, and another at the third.[99] Charcoal, when it has passed through fire and has been quenched, only begins to assume its active properties; and, when it might be supposed to have been reduced to annihilation, it is then that it has its greatest energies. An element this, of immense, of boundless[1] power, and, as to which, it is a matter of doubt whether it does not create even more than it destroys!

CHAP. 69.—THREE REMEDIES DERIVED FROM FIRE AND FROM ASHES.

Fire even has certain medicinal virtues of its own. When pestilences prevail, in consequence of the obscuration[2] of the sun, it is a well-known fact, that if fires are lighted, they are

[97] This is, probably, the meaning of "in guttas;" a new reading, which is only found in the Bamberg MS.

[98] See B. xxxiv. c. 2. [99] See B. xxxiv. c. 47.

[1] "Improba" seems to be used here in much the same sense in which Virgil has said "Labor improbus"—"Unremitting labour."

[2] He alludes, probably, to eclipses of the sun.

productive of beneficial results in numerous ways. Empedocles and Hippocrates have proved this in several passages.

"For convulsions or contusions of the viscera," says M. Varro—for it is his own words that I use—"let the hearth be your medicine-box; for lie of ashes,[2a] taken from thence, mixed with your drink, will effect a cure. Witness the gladiators, for example, who, when disabled at the Games, refresh themselves with this drink." Carbuncle too, a kind of disease which, as already[3] stated, has recently carried off two persons of consular rank, admits of being successfully treated with oak-charcoal,[4] triturated with honey. So true is it that things which are despised even, and looked upon as so utterly destitute of all virtues, have still their own remedial properties, charcoal and ashes for example.

### CHAP. 70.—PRODIGIES CONNECTED WITH THE HEARTH.

I must not omit too, one portentous fact connected with the hearth, and famous in Roman history. In the reign of Tarquinius Priscus, it is said, there appeared upon his hearth a resemblance of the male generative organ in the midst of the ashes. The captive Ocrisia, a servant of Queen Tanaquil, who happened to be sitting there, arose from her seat in a state of pregnancy, and became the mother of Servius Tullius, who eventually succeeded to the throne.[5] It is stated, too, that while the child was sleeping in the palace, a flame was seen playing round his head; the consequence of which was, that it was believed that the Lar of the household was his progenitor. It was owing to this circumstance, we are informed, that the Compitalia,[6] games in honour of the Lares, were instituted.

SUMMARY.—Remedies mentioned, eighty-nine. Facts and narratives, four hundred and thirty-four.

[2a] Acacia charcoal is still recommended as a valuable tonic, and as good for internal ulcerations and irritations of the mucous membrane.

[3] In B. xxvi. c. 4.

[4] "Querneus."

[5] It is much more likely that he was the son of Tarquin himself, who not improbably, if indeed there ever was such a person, invented the story, to escape the wrath of Queen Tanaquil. This absurd story is mentioned also by Ovid, Arnobius, and Dionysius of Halicarnassus.

[6] See B. iii. c. 9, and B. xix. c. 4.

ROMAN AUTHORS QUOTED.—M. Varro,[7] Cælius,[8] Galba,[9] Cincius,[10] Mucianus,[11] Nepos Cornelius,[12] L. Piso,[13] Q. Tubero,[14] Fabius Vestalis,[15] Annius Fetialis,[16] Fabianus,[17] Seneca,[18] Cato the Censor,[19] Vitruvius.[19*]

FOREIGN AUTHORS QUOTED.—Theophrastus,[20] Pasiteles,[21] King Juba,[22] Nicander,[23] Sotacus,[24] Sudines,[25] Alexander[26] Polyhistor, Apion,[27] Plistonicus,[28] Duris,[29] Herodotus,[30] Euhemerus,[31] Aristagoras,[32] Dionysius,[33] Artemidorus,[34] Butoridas,[35] Antisthenes,[36] Demetrius,[37] Demoteles,[38] Lyceas.[39]

[7] See end of B. ii. L. Cælius Antipater. [8] See end of B. ii.

[9] Probably Sulpicius Galba, who devoted his time to literary pursuits, and rose to no higher office than the prætorship. He was grand-father of the Emperor Galba, and wrote a historical work.

[10] Another reading is "Ictius," but nothing is known of either.

[11] See end of B. ii. [12] See end of B. ii. [13] See end of B. ii.

[14] See end of B. ii. and end of B. xviii. [15] See end of B. vii.

[16] See end of B. xvi. [17] See end of B. ii. and end of B. xviii.

[18] See end of B. vi. [19] See end of B. iii. [19*] See end of B. xvi.

[20] See end of B. iii. [21] See end of B xxxiii. [22] See end of B. v.

[23] See end of B. viii.

[24] All that we know of him is, that he wrote on Precious Stones. Apollonius Dyscolus mentions an author who wrote on the same subject, whose name was "Tacus;" and possibly the same person is meant.

[25] Mentioned in this and the next Book, as a writer on Precious Stones.

[26] Cornelius Alexander. See end of B. iii. [27] See end of B. xxx.

[28] See end of. B. xx. [29] See end of B. vii. [30] See end of B. ii.

[31] A Sicilian author of the time of Alexander. In his "Sacred History," he interpreted the legends of the popular religion as based upon historical facts, and taught that the gods of Mythology were only deified men. His system has been compared with the rationalism of some German theologians, and Euhemerists were still to be found at the close of last century. Diodorus Siculus, Polybius, and Dionysius of Halicarnassus have followed in his track; and the poet Ennius translated his work, which is now lost.

[32] A Greek writer on Egypt. He is often quoted by Stephanus Byzantinus, who says that he was not much younger than Plato. He is mentioned as a writer on the Pyramids of Egypt, in Chapter 17 of this Book.

[33] See end of B. xii. [34] See end of B. ii.

[35] From the mention made of him in Chapter 17 of this Book, he must have lived in the first century before, or the first century after Christ.

[36] Possibly Antisthenes of Rhodes, a historian who lived about 200 B.C.

[37] Possibly the author mentioned by Athenæus, B. xv., as having written on Egypt. He is mentioned in Chapter 17 of this Book.

[38] Hardouin thinks that he is the same person as Hermateles, mentioned by Tertullian, *De Spectaculis*, c. 8, as having written on Obelisks.

[39] A native of Naucratis, in Egypt, who wrote a work on that country, mentioned by Athenæus, and some Poems.

# BOOK XXXVII.

## THE NATURAL HISTORY OF PRECIOUS STONES.

### CHAP. 1. (1.)—THE FIRST USE OF PRECIOUS STONES.

THAT nothing may be wanting to the work which I have undertaken, it still remains for me to speak of precious stones: a subject in which the majestic might of Nature presents itself to us, contracted within a very limited space, though, in the opinion of many, nowhere displayed in a more admirable form. So great is the value that men attach to the multiplied varieties of these gems, their numerous colours, their constituent parts, and their singular beauty, that, in the case of some of them, it is looked upon as no less than sacrilege to engrave them, for signets even, the very purpose for which, in reality, they were made. Others, again, are regarded as beyond all price, and could not be valued at any known amount of human wealth; so much so that, in the case of many, it is quite sufficient to have some single gem or other before the eyes, there to behold the supreme and absolute perfection of Nature's work.

We have already[1] stated, to some extent, when speaking on the subject of gold and rings, how the use of precious stones first originated, and from what beginnings this admiration of them has now increased to such an universal passion. According to fabulous lore, the first use of them was suggested by the rocks of Caucasus, in consequence of an unhappy interpretation which was given to the story of the chains of Prometheus: for we are told by tradition, that he enclosed a fragment of this stone in iron, and wore it upon his finger;[2] such being the first ring and the first jewel known.

### CHAP. 2.—THE JEWEL OF POLYCRATES.

With a beginning such as this, the value set upon precious

[1] In B. xxxiii. c. 4.

[2] This being imposed as a punishment on him, in remembrance of his sacrilegious crimes, when released by Jupiter from the rock. Prometheus and Vulcan, as Ajasson remarks, are personifications of fire, employed for artistic purposes.

stones increased to such a boundless extent, that Polycrates,[3] the tyrant of Samos, who ruled over the islands and the adjacent shores, when he admitted that his good fortune had been too great, deemed it a sufficient expiation for all this enjoyment of happiness, to make a voluntary sacrifice of a single precious stone; thinking thereby to balance accounts with the inconstancy of fortune, and, by this single cause for regret, abundantly to buy off every ill-will she might entertain. Weary, therefore, of his continued prosperity, he embarked on board a ship, and, putting out to sea, threw the ring which he wore into the waves. It so happened, however, that a fish of remarkable size, one destined for the table of a king, swallowed the jewel, as it would have done a bait; and then, to complete the portentous omen, restored it again to the owner in the royal kitchen, by the ruling hand of a treacherous[4] fortune.

The stone in this ring, it is generally agreed, was a sardonyx,[5] and they still show one at Rome, which, if we believe the story, was this identical stone. It is enclosed in a horn of gold, and was deposited, by the Emperor Augustus, in the Temple of Concord, where it holds pretty nearly the lowest rank among a multitude of other jewels that are preferable to it.

### CHAP. 3.—THE JEWEL OF PYRRHUS.

Next in note after this ring, is the jewel that belonged to

[3] See B. xxxiii. c. 6.

[4] For ultimately, Oroetes, the satrap of Sardes, contrived to allure him into his power, and had him crucified, B.C. 522. Fuller, in his *Worthies*, p. 370, tells a very similar story of the loss and recovery of his ring by one Anderson, a merchant of Newcastle-on-Tyne; and Zuinglius gives a similar statement with reference to Arnulph, duke of Lorraine, who dropped his ring into the Moselle, and recovered it from the belly of a fish.

[5] See Chapter 23. According to Herodotus, Pausanias, Dionysius of Halicarnassus, and Suidas, the stone was an emerald; and Lessing thinks that there was no figure engraved on it. See Chapter 4 of this Book. Without vouching for the truth of it, we give the following extract from the *London Journal*, Vol. xxiii. No. 592. "A vine-dresser of Albano, near Rome, is said to have found in a vineyard, the celebrated ring of Polycrates.——The stone is of considerable size, and oblong in form. The engraving on it, by Theodore of Samos, the son of Talikles, is of extraordinary fineness and beauty. It represents a lyre, with three bees flying about; below, on the right, a dolphin; on the left, the head of a bull. The name of the engraver is inscribed in Greek characters. The upper surface of the stone is slightly concave, not highly polished, and one corner broken. It is asserted that the possessor has been offered 50,000 dollars for it."

another king, Pyrrhus, who was so long at war with the Romans. It is said that there was in his possession an agate,[6] upon which were to be seen the Nine Muses and Apollo holding a lyre; not a work of art, but the spontaneous produce of Nature,[7] the veins in it being so arranged that each of the Muses had her own peculiar attribute.

With the exception of these two jewels, authors make no mention of any others that have been rendered famous. We only find it recorded by them, that Ismenias the flute-player[8] was in the habit of displaying great numbers of glittering stones, a piece of vanity, on his part, which gave occasion to the following story. An emerald,[9] upon which was engraved a figure of Amymone,[10] being offered for sale in the Isle of Cyprus at the price of six golden denarii, he gave orders to purchase it. The dealer however, reduced the price, and returned two denarii; upon which, Ismenias remarked—"By Hercules! he has done me but a bad turn in this, for the merit of the stone has been greatly impaired by this reduction in price."

It seems to have been this Ismenias who introduced the universal practice among musicians of proclaiming their artistic merit by this kind of ostentation. Thus Dionysodorus, for instance, his contemporary and rival, imitated his example, in order that he might not appear to be his inferior in skill; whereas, in reality, he only held the third rank among the musicians of that day. Nicomachus, too, it is said, was the possessor of great numbers of precious stones, though selected with but little taste. In mentioning these illustrations, by way of prelude to this Book, it is by no means improbable that they may have the appearance of being addressed to those, who, piquing themselves upon a similar display, become puffed up with a vanity which is evidently much more appropriate to a performer on the flute.

[6] "Achates." A variegated chalcedony. It was probably what is called, from its radiated streaks, a *fortification agate*. See Chapter 54 of this Book.

[7] Ajasson remarks that there can be little doubt that Nature had at least been very extensively seconded by Art.

[8] "Choraules." One who accompanies the chorus on the pipe or flute.

[9] "Smaragdus."

[10] One of the Danaïdes.

CHAP. 4.—WHO WERE THE MOST SKILFUL LAPIDARIES. THE FINEST SPECIMENS OF ENGRAVING ON PRECIOUS STONES.

The stone of the ring[11] which is now shown as that of Polycrates, is untouched and without engraving. In the time of Ismenias, long[12] after his day, it would appear to have become the practice to engrave smaragdi even; a fact which is established by an edict of Alexander the Great, forbidding his portrait to be cut upon this stone by any other engraver than Pyrgoteles,[13] who, no doubt, was the most famous adept in this art. Since his time, Apollonides and Cronius have excelled in it; as also Dioscurides,[14] who engraved a very excellent likeness of the late Emperor Augustus upon a signet, which, ever since, the Roman emperors have used. The Dictator Sylla, it is said, always made use of a seal[15] which represented the surrender of Jugurtha. Authors inform us also, that the native of Intercatia,[16] whose father challenged Scipio Æmilianus,[17] and was slain by him, was in the habit of using a signet with a representation of this combat engraved upon it; a circumstance which gave rise to the well-known joke of Stilo Præconinus,[18] who naively enquired, what he would have done if Scipio had been the person slain?

The late Emperor Augustus was in the habit, at first, of using the figure of a Sphinx[19] for his signet; having found two of them, among the jewels of his mother, that were perfectly alike. During the Civil Wars, his friends used to employ one of these signets, in his absence, for sealing such letters and edicts as the circumstances of the times required to be issued in his name; it being far from an unmeaning pleasantry

[11] This is said with reference to the one in the Temple of Concord, mentioned in Chapter 2.

[12] But see Exodus xxvii. 9, *et. seq*, where it is shown that the practice existed many hundreds of years before.

[13] See B. vii. c. 38; where marble is the substance named. There are still two gems in existence said to have been engraved by this artist; but by some they are thought to be spurious.

[14] There are many precious stones with his name, still extant: but only six appear to have been really engraved by him.

[15] This signet is mentioned also by Plutarch and Valerius Maximus.

[16] See B. iii. c. 4.

[17] The younger Africanus. This circumstance is mentioned in the Epitome of Livy, B. xlviii. [18] See B. xxxiii. c. 5, and end of Book ix.

[19] In reference to the ambiguous part which he acted, Ajasson thinks, in the early part of his career.

on the part of those who received these missives, that the Sphinx always brought its enigmas[20] with it. The frog, too, on the seal of Mæcenas, was held in great terror, by reason of the monetary imposts which it announced. At a later period, with the view of avoiding the sarcasms relative to the Sphinx, Augustus made use of a signet with a figure upon it of Alexander the Great.

### CHAP. 5.—THE FIRST DACTYLIOTHECÆ AT ROME.

A collection of precious stones bears the foreign name of "dactyliotheca."[21] The first person who possessed one at Rome was Scaurus,[22] the step-son of Sylla; and, for a long time, there was no other such collection there, until at length Pompeius Magnus consecrated in the Capitol, among other donations, one that had belonged to King Mithridates; and which, as M. Varro and other authors of that period assure us, was greatly superior to that of Scaurus. Following his example, the Dictator Cæsar consecrated six dactyliothecæ in the Temple of Venus Genetrix; and Marcellus, the son of Octavia,[23] presented one to the Temple of the Palatine Apollo.

### CHAP. 6.—JEWELS DISPLAYED AT ROME IN THE TRIUMPH OF POMPEIUS MAGNUS.

But it was this conquest by Pompeius Magnus that first introduced so general a taste for pearls and precious stones; just as the victories, gained by L. Scipio[24] and Cneius Manlius,[25] had first turned the public attention to chased silver, Attalic tissues, and banquetting-couches decorated with bronze; and the conquests of L. Mummius had brought Corinthian bronzes and pictures into notice.

(2.) To prove more fully that this was the case, I will here give the very words of the public Registers[26] with reference to the triumphs of Pompeius Magnus. On the occasion of his third triumph, over the Pirates and over the Kings and nations of Asia and Pontus that have been already enumerated in the Seventh Book[27] of this work, M. Piso and M. Messala being

[20] In reference to the story of Œdipus and the Sphinx.
[21] A Greek word, signifying a "repository of kings."
[22] See B. XXXVI. c. 24.
[23] The sister of Augustus.
[24] See B. XXXIII c. 53.
[25] See B. XXXIV. c. 8.
[26] "Acta."
[27] Chapter 7.

consuls,[28] on the day before[29] the calends of October, the anniversary of his birth, he displayed in public, with its pieces, a chess-board,[30] made of two precious stones, three feet in width by two in length—and to leave no doubt that the resources of Nature do become exhausted, I will here observe, that no precious stones are to be found at the present day, at all approaching such dimensions as these; as also that there was upon this board a moon of solid gold, thirty pounds in weight! —three banquetting-couches; vessels for nine waiters, *in* gold and precious stones; three golden statues of Minerva, Mars, and Apollo; thirty-three crowns adorned with pearls; a square mountain of gold, with stags upon it, lions, and all kinds of fruit, and surrounded with a vine of gold; as also a musæum,[31] adorned with pearls, with an horologe[32] upon the top of it.

There was a likeness also in pearls of Pompeius himself, his noble countenance, with the hair thrown back from the forehead, delighting the eye. Yes, I say, those frank features, so venerated throughout all nations, were here displayed in pearls! the severity of our ancient manners being thus subdued, and the display being more the triumph of luxury than the triumph of conquest. Never, most assuredly, would Pompeius have so long maintained his surname of "Magnus" among the men of that day, if on the occasion of his first[33] conquest his triumph had been such as this. Thy portrait in pearls, O Magnus! those resources of prodigality, that have been discovered for the sake of females only! Thy portrait in pearls, refinements in luxury, which the Roman laws would not have allowed thee to wear even! And was it in this way that thy value must be appreciated? Would not that trophy have given a more truthful likeness of thee which thou hadst erst erected upon the Pyrenæan[34] mountain heights? Assuredly such a portrait as this had been no less than a downright ignominy and disgrace, were we not bound to behold in it a menacing presage of the anger of the gods, and to see foreshadowed thereby the time when that head, now laden with the wealth of the East, was to be displayed, severed from the body.

[28] A.U.C. 693. [29] 30th of September [30] "Alveum lusorium."
[31] Probably meaning a shrine dedicated to the Muses.
[32] See B. ii. c. 78, and B. vii. c. 60. [33] That of Africa.
[34] See B. vii. c. 27.
[35] As was the case, after the murder of Pompey in Egypt.

But in other respects, how truly befitting the hero was this triumph! To the state, he presented two thousand millions of sesterces; to the legati and quæstors who had exerted themselves in defence of the sea coast, he gave one thousand millions of sesterces; and to each individual soldier, six thousand sesterces. He has rendered, however, comparatively excusable the Emperor Caius,[36] who, in addition to other feminine luxuries, used to wear shoes adorned with pearls; as also the Emperor Nero, who used to adorn his sceptres with masks worked in pearls, and had the couches, destined for his pleasures, made of the same costly materials. Nay, we have no longer any right, it would seem, to censure the employment of drinking-cups adorned with precious stones, of various other articles in daily use that are similarly enriched, and of rings that sparkle with gems: for what species of luxury can there be thought of, that was not more innocent in its results than this on the part of Pompeius?

CHAP. 7.—AT WHAT PERIOD MURRHINE VESSELS WERE FIRST INTRODUCED AT ROME. INSTANCES OF LUXURY IN REFERENCE TO THEM.

It was the same conquest, too, that first introduced murrhine[37] vessels at Rome; Pompeius being the first to dedicate, at the conclusion of this triumph, vases and cups, made of this material, in the Temple of Jupiter Capitolinus: a circumstance which soon brought them into private use, waiters, even, and eating-utensils made of murrhine being in great request. This species of luxury, too, is daily on the increase, a single cup, which would hold no more than three sextarii, having been purchased at the price of seventy thousand sesterces. A person of consular rank, who some years[38] ago used to drink out of this cup, grew so passionately fond of it, as to gnaw its

[36] Caligula.

[37] Modern writers differ as to the material of which these vessels were composed. Some think that they were of variegated glass, and others of onyx; but the more general opinion is, that they were Chinese porcelain, and we have the line in Propertius, B. iv. El. 5, l. 26. "And murrhine vessels baked on Parthian hearths." Ajasson is of opinion, from the description given by Pliny, that these vessels were made of Fluor spar, or fluate of lime. "Myrrhine" is another reading of the word.

[38] "Ante hos annos." Sillig is of opinion that the reading here should be "L. Annius," and that L. Annius Bassus, who was Consul suffectus in the year 70 A.D., is the person referred to; or possibly, T. Arrius Antoninus, who was Consul suffectus, A.D. 69.

edges even, an injury, however, which has only tended to enhance its value: indeed there is now no vessel in murrhine that has ever been estimated at a higher figure than this. We may form some opinion how much money this same personage swallowed up in articles of this description, from the fact that the number of them was so great, that, when the Emperor Nero deprived his children of them, and they were exposed to public view, they occupied a whole theatre to themselves, in the gardens beyond the Tiber; a theatre which was found sufficiently large even, for the audience that attended on the occasion when Nero[39] rehearsed his musical performances before his appearance in the Theatre of Pompeius. It was at this exhibition, too, that I saw counted the broken fragments of a single cup, which it was thought proper to preserve in an urn and display, I suppose, with the view of exciting the sorrows of the world, and of exposing the cruelty of fortune; just as though it had been no less than the body of Alexander the Great himself!

T. Petronius,[40] a personage of consular rank, intending, from his hatred of Nero, to disinherit the table of that prince, broke a murrhine basin, which had cost him no less than three hundred thousand sesterces. But Nero himself, as it was only proper for a prince to do, surpassed them all, by paying one million of sesterces for a single cup: a fact well worthy of remembrance, that an emperor, the father of his country, should have drunk from a vessel of such costly price!

### CHAP. 8.—THE NATURE OF MURRHINE VESSELS.

Murrhine vessels come from the East, in numerous localities of which, remarkable for nothing else, they are to be found. It is in the empire of the Parthians, more particularly, that they are met with, though those of the very finest quality come to us from Carmania.[41] It is generally thought that these vessels are formed of a moist substance, which under ground becomes solidified by heat.[42] In size they never ex-

[39] The Gardens of Nero, in the Fourteenth Region of the City.

[40] He had been formerly a sharer in the debaucheries of Nero. Tacitus called him "Caius."

[41] See B. vi. cc. 27, 28, 32.

[42] Ajasson is of opinion that this passage bears reference to crystallization. Both he and Desfontaines see in the present Chapter a very exact description of Fluor spar; and there is certainly great difficulty in recog-

ceed a small waiter,[43] and, as to thickness, they rarely admit of being used as drinking-cups, so large as those already[44] mentioned. The brightness of them is destitute of strength, and it may be said that they are rather shining than brilliant.[45] But the chief merit of them is the great variety of their colours, and the wreathed veins, which, every here and there, present shades of purple and white, with a mixture of the two; the purple gradually changing, as it were, to a fiery red, and the milk-white assuming a ruddy hue. Some persons praise the edges of these vessels more particularly, with a kind of reflection in the colours, like those beheld in the rain-bow. Others, again, are more pleased with them when quite opaque, it being considered a demerit when they are at all transparent, or of a pallid hue. The appearance, too, of crystals[46] in them is highly prized, and of spots that look like warts; not prominent, but depressed, as we mostly see upon the human body. The perfume,[47] too, of which they smell, is looked upon as an additional recommendation.

### CHAP. 9 —THE NATURE OF CRYSTAL.

It is a diametrically opposite cause to this that produces crystal,[48] a substance which assumes a concrete form from excessive congelation.[49] At all events, crystal is only to be found in places where the winter snow freezes with the greatest intensity; and it is from the certainty that it is a kind of ice, that it has received the name[50] which it bears in Greek. The East, too, sends us crystal, there being none preferred to the produce of India. It is to be found, also, in Asia, that of the vicinity of Alabanda,[51] Orthosia,[52] and the neighbouring mountains, being held in a very low degree of esteem. In Cyprus, also,

nizing any affinity between murrhine vessels, as here described, and porcelain.

[43] "Abacus."

[44] In the preceding Chapter.

[45] Meaning that they are semitransparent, Ajasson thinks. One great characteristic of Fluor spar is its being subtranslucent.

[46] This would appear to be the meaning here of "sales." See p. 396.

[47] One of the grounds, Ajasson says, on which may be based the opinion that they were artificial.

[48] Colourless crystals, quartz, or rock crystal; called "white stone" in jewellery.

[49] See B. xxxvi. c. 45. This was a very general opinion of the ancients with respect to crystal.

[50] Κρύσταλλος, from κρύος, "cold."

[51] See B. v. c. 29.

[52] In Caria, see B. v. c. 29.

there is crystal, but that found upon the Alpine heights in Europe is, in general, more highly valued. According to Juba, there is crystal in a certain island of the Red Sea, opposite the coast of Arabia, called "Necron;"[53] as, also, in another neighbouring island[54] which produces the precious stone known as the "topazus;" where a block of crystal was extracted, he says, by Pythagoras, the præfect of King Ptolemæus, no less than a cubit in length.

Cornelius Bocchus informs us that in Lusitania, there have been blocks of crystal found, of extraordinary weight, in sinking shafts in the Ammiensian[55] mountains there, to a water-level for the supply of wells. It is a marvellous fact, stated by Xenocrates of Ephesus, that in Asia and in the Isle of Cyprus, crystal is turned up by the plough; it having been the general belief that it is never to be found in terreous soils, and only in rocky localities. That is much more probable which the same Xenocrates tells us, when he says that the mountain streams often bring down with them fragments of crystal. Sudines says, that crystal is only to be found in localities that face the south, a thing that is known to be really the fact: indeed, it is never found in humid spots, however cold the climate may be, even though the rivers there freeze to the very bottom. Rain-water and pure snow are absolutely necessary for its formation,[56] and hence it is, that it is unable to endure heat, being solely employed for holding liquids that are taken cold. From the circumstance of its being hexagonal[57] and hexahedral, it is not easy to penetrate this substance; and the more so, as the pyramidal terminations do not always have the same appearance. The polish on its faces is so exquisite, that no art can possibly equal it.

## CHAP. 10.—LUXURY DISPLAYED IN THE USE OF CRYSTAL. REMEDIES DERIVED FROM CRYSTAL.

The largest block of crystal that has ever been beheld by

[53] The Island "of the dead." Brotero supposes it to be the island of Maceira.

[54] See B. vi. c. 34. As Ajasson remarks, there could be no snow or ice here.

[55] See B. iv. c. 35.

[56] Dioscorides attributes the hardening of crystal to the action of the sun.

[57] "Its shape is rhombohedral, and hemihedral in some of its modifications. The planes on the angles between the prism and pyramidal terminations, incline sometimes to the right, and sometimes to the left, and the crystals are termed right and left-handed crystals."—Dana, *System of Mineralogy*, Art. *Quartz*.

us, is the one that was consecrated by Julia Augusta in the Capitol, and which weighed about one hundred and fifty pounds.[58] Xenocrates speaks of having seen a vase of crystal, which held one amphora,[59] and we find other writers mentioning a vessel from India which held four sextarii. For my own part, I can positively say, that there is crystal amid the crags of the Alps, so difficult of access, that it is usually found necessary to be suspended by ropes in order to extract it. Persons who are experienced in the matter detect its presence by certain signs and indications.

Crystal is subject to numerous defects, sometimes presenting a rough, solder-like, substance, or else clouded by spots upon it; while occasionally it contains some hidden humour[60] within, or is traversed by hard and brittle knurrs,[61] which are known as "salt grains."[62] Some crystal, too, has a red rust upon it, while, in other instances, it contains filaments that look like flaws, a defect which artists conceal by engraving it. But where crystals are entirely free from defect, they are preferred uncut; in which case, they are known as "acenteta,"[63] and have the colour, not of foam, but of limpid water. In the last place, the weight of crystals is a point which is taken into consideration.

I find it stated by medical men that the very best cautery for the human body is a ball of crystal acted upon by the rays of the sun.[64] This substance, too, has been made the object of a mania; for, not many years ago, a mistress of a family, who was by no means very rich, gave one hundred and fifty thousand sesterces for a single basin made of crystal. Nero, on receiving tidings that all was lost, in the excess of his fury, dashed two cups of crystal to pieces; this being his last act of vengeance upon his fellow-creatures, preventing any one from ever drinking again from these vessels. Crystal, when broken, cannot by any possibility be mended. Vessels in

[58] Ajasson remarks that blocks have been found in Switzerland, weighing above eight hundred pounds.

[59] Forty-eight sextarii. See Introduction to Vol. III.

[60] This "vomica," Ajasson says, is either water, azote, rarified oxygen, or water in combination with naphtha.

[61] "Centra," knots, or flaws. See B. xvi. c. 76, where he speaks of the "centra" in marble. See also Beckmann, Hist. Inv. Vol. I. p. 471. *Bohn's Edition.*

[62] "Sale." See Note 46 above.

[63] "Without flaw."

[64] See B. xxxvi. c. 67.

glass have been brought to a marvellous degree of resemblance to crystal; and yet, wonderful to say, they have only tended to enhance the value of crystal, and in no way to depreciate it.

CHAP. 11.—AMBER: THE MANY FALSEHOODS THAT HAVE BEEN TOLD ABOUT IT.

Next in rank among the objects of luxury, we have amber;[65] an article which, for the present, however, is in request among women[66] only. All these three last-mentioned substances hold the same rank, no doubt, as precious stones; the two former for certain fair reasons; crystal, because it is adapted for taking cool drinks, and murrhine vessels, for taking drinks that are either hot or cold. But as for amber, luxury has not been able, as yet, to devise any justification for the use of it. This is a subject which affords us an excellent opportunity of exposing some of the frivolities and falsehoods of the Greeks; and I beg that my readers will only have patience with me while I do so, it being really worth while, for our own practical improvement, to become acquainted with the marvellous stories which they have promulgated respecting amber.

After Phaëthon had been struck by lightning, his sisters, they tell us, became changed into poplars,[67] which every year shed their tears upon the banks of the Eridanus, a river known to us as the "Padus." To these tears was given the name of "electrum,"[68] from the circumstance that the Sun was usually called "elector." Such is the story, at all events, that is told by many of the poets, the first of whom were, in my opinion, Æschylus, Philoxenus, Euripides, Satyrus, and Nicander; and the falsity of which is abundantly proved upon the testimony of Italy itself.[69] Those among the Greeks who have devoted more attention to the subject, have spoken of certain islands in the Adriatic Sea, known as the "Electrides," and

[65] "Succinum." It is of vegetable origin, and, according to Göppert, was originally the viscous resin of a tree named by him *Pinites succinifer*.

[66] It is used by men, more particularly, at the present day, as a mouthpiece for pipes.

[67] As to the *vegetable* origin of amber, there is no doubt that the ancients were right.

[68] Most probably from ἥλιος, the "sun." Phaëthon was fabled to have been the son of Apollo. See the story in Ovid's Met. B. ii. l. 340, *et seq.*

[69] Where amber was not to be found.

to which the Padus,[70] they say, carries down electrum. It is the fact, however, that there never were any islands there so called, nor, indeed, any islands so situate as to allow of the Padus carrying down anything in its course to their shores. As to Æschylus placing the Eridanus in Iberia, or, in other words, in Spain, and giving it the name of Rhodanus; and as to Euripides and Apollonius representing the Rhodanus and the Padus as discharging themselves by one common mouth on the shores of the Adriatic; we can forgive them all the more readily for knowing nothing about amber when they betray such monstrous ignorance of geography.

Other writers, again, who are more guarded in their assertions, have told us, though with an equal degree of untruthfulness, that, at the extremity of the Adriatic Gulf, upon certain inaccessible rocks there, there are certain trees[71] which shed their gum at the rising of the Dog-Star. Theophrastus[72] has stated that amber is extracted from the earth in Liguria;[73] Chares, that Phaëthon died in the territory of Hammon, in Æthiopia, where there is a temple of his and an oracle, and where amber is produced; Philemon, that it is a fossil substance, and that it is found in two different localities in Scythia, in one of which it is of a white and waxen colour, and is known as "electrum;" while in the other it is red, and is called "sualiternicum." Demostratus calls amber "lyncurion,"[74] and he says that it originates in the urine of the wild beast known as the "lynx;" that voided by the male producing a red and fiery substance, and that by the female an amber of a white and less pronounced colour: he also informs us that by some persons it is called "langurium," and that in Italy, there are certain wild beasts known as "languri." Zenothemis, how-

[70] In reality, these "Amber Islands" were situate at the mouth of the Vistula, into which the Radanus discharged itself; a river whose name was afterwards confounded with "Eridanus," the ancient name of the Padus, or Po. See B. iv. cc. 27, 30, as to the produce of amber in the Baltic.

[71] Another reference to its vegetable origin. [72] De Lapid. n. 53.

[73] In confirmation of this, Ajasson remarks that amber is found at Saint Paulet in the Department Du Gard, and at Aix, in the Department of Bouches-du-Rhône, regions not very distant from the territory of ancient Liguria.

[74] It has been supposed by some that this in reality was Tourmaline, and Woodward has identified it with Belemnites. See Beckmann, Hist. Inv. Vol. I. p. 86. *Bohn's Edition.* See further as to "Lyncurium," B. viii. c. 57, and Chapter 13 of this Book.

ever, calls these wild beasts "langæ," and gives the banks of the river Padus as their locality. Sudines says, that it is a tree in reality, that produces amber, and that, in Etruria, this tree is known by the name of "lynx;" an opinion which is also adopted by Metrodorus. Sotacus expresses a belief that amber exudes from certain stones in Britannia, to which he gives the name of "electrides." Pytheas says that the Gutones,[75] a people of Germany, inhabit the shores of an æstuary of the Ocean called Mentonomon, their territory extending a distance of six thousand stadia; that, at one day's sail from this territory, is the Isle of Abalus, upon the shores of which, amber is thrown up by the waves in spring, it being an excretion of the sea in a concrete form; as, also, that the inhabitants use this amber by way of fuel, and sell it to their neighbours, the Teutones. Timæus, too, is of the same belief, but he has given to the island the name of Basilia.[76]

Philemon says that electrum does not yield a flame.[77] Nicias, again, will have it, that it is a liquid produced by the rays of the sun; and that these rays, at the moment of the sun's setting, striking with the greatest force upon the surface of the soil, leave upon it an unctuous sweat, which is carried off by the tides of the Ocean, and thrown up upon the shores of Germany. He states, also, that in Egypt it is similarly produced, and is there called "sacal;"[78] that it is found in India, too, where it is held as a preferable substitute for frankincense; and that in Syria the women make the whirls of their spindles of this substance, and give it the name of "harpax,"[79] from the circumstance that it attracts leaves towards it, chaff, and the light fringe of tissues. According to Theochrestus, amber is thrown up by the tides of the Ocean, at the foot of the Pyrenæan range; an opinion adopted also by Xenocrates. Asarubas, who has written the most recently upon these subjects, and is still living, informs us, that near the shores of the Atlantic is Lake Cephisis, known to the Mauri by the name of "Electrum;" and that when this lake is dried up by the sun, the slime of it produces amber, which floats upon the surface. Mnaseas speaks of a locality in Africa called

[75] See B. iv. c. 28.
[76] See B. iv. c. 27.
[77] Said in reference to the electric spark, Ajasson thinks.
[78] In Hebrew, this word means "a stone."
[79] From the Greek ἁρπάζω, "to drag."

Sicyon, and of a river Crathis there, which discharges itself from a lake into the Ocean, the banks of which are frequented by birds which he calls "meleagrides"[80] and "penelopes:" it is here that, according to him, electrum is produced, in manner above mentioned. Theomenes says that near the Greater Syrtis are the Gardens of the Hesperides, and Lake Electrum: on the banks, he says, are poplars, from the summits of which amber falls into the water below, where it is gathered by the maidens of the Hesperides.

Ctesias asserts that there is in India[81] a river called Hypobarus, a word which signifies "bearer of all good things;" that this river flows from the north into the Eastern Ocean, where it discharges itself near a mountain covered with trees which produce electrum; and that these trees are called "siptachoræ," the meaning of which is "intense sweetness." Mithridates says, that off the shores of Germany there is an island called "Serita,"[82] covered with a kind of cedar, from which amber falls upon the rocks. According to Xenocrates, this substance is called, in Italy, not only "succinum," but "thieum" as well, the Scythian name of it, for there also it is to be found, being "sacrium:" others, he says, are of opinion that it is a product of Numidia. But the one that has surpassed them all is Sophocles, the tragic poet; a thing that indeed surprises me, when I only consider the surpassing gravity of his lofty style, the high repute that he enjoyed in life, his elevated position by birth at Athens, his various exploits, and his high military command. According to him, amber is produced in the countries beyond India, from the tears that are shed for Meleager, by the birds called "meleagrides!"[83] Who can be otherwise than surprised that he should have believed such a thing as this, or have hoped to persuade others to believe it? What child, too, could possibly be found in such a state of ignorance as to believe that birds weep once a year, that their tears are so prolific as this, or that they go all the way from Greece, where Meleager died, to India to weep? "But then," it will be said, "do not the poets tell many other stories that are quite as fabulous?" Such is the fact, no doubt,

[80] See B. x. c. 38.

[81] All this is based, Ajasson thinks, upon the stories of Hindoo mythology.

[82] The old reading is "Osericta:" Ajasson identifies it with the island of Oësel in the Baltic.

[83] See B. x. c. 38.

but for a person seriously to advance such an absurdity with reference to a thing so common as amber, which is imported every day and so easily proves the mendacity of this assertion, is neither more nor less than to evince a supreme contempt for the opinions of mankind, and to assert with impunity an intolerable falsehood.

(3.) There can be no doubt that amber is a product of the islands of the Northern Ocean, and that it is the substance by the Germans called "glæsum;"[84] for which reason the Romans, when Germanicus Cæsar commanded the fleet in those parts, gave to one of these islands the name of Glæsaria,[85] which by the barbarians was known as Austeravia. Amber is produced from a marrow discharged by trees belonging to the pine[86] genus, like gum from the cherry, and resin from the ordinary pine. It is a liquid at first, which issues forth in considerable quantities, and is gradually hardened by heat or cold, or else by the action of the sea, when the rise of the tide carries off the fragments from the shores of these islands. At all events, it is thrown up upon the coasts, in so light and voluble a form that in the shallows it has all the appearance of hanging suspended in the water. Our forefathers, too, were of opinion that it is the juice of a tree, and for this reason gave it the name of "succinum:"[87] and one great proof that it is the produce of a tree of the pine genus, is the fact that it emits a pine-like smell when rubbed, and that it burns, when ignited, with the odour and appearance of torch-pine wood.

Amber is imported by the Germans into Pannonia, more particularly; from whence the Veneti, by the Greeks called Eneti, first brought it into general notice, a people in the vicinity of Pannonia, and dwelling on the shores of the Adriatic Sea. From this it is evident how the story which connects it with the Padus first originated; and at the present day we see the female peasantry in the countries that lie beyond that river wearing necklaces of amber, principally as an ornament, no doubt, but on account of its remedial virtues as well; for amber, it is generally believed, is good for affec-

[84] See B. iv. c.c. 27, 30, and the Notes. [85] See B. iv. c. 30.

[86] It is just possible that the Pinites succinifer may have still existed, to some extent, eighteen hundred years ago. See Note 65 above.

[87] From "succus," "juice."

tions of the tonsillary glands and fauces, the various kinds of water in the vicinity of the Alps being apt to produce disease in the human throat.[88]

From Carnuntum in Pannonia, to the coasts of Germany from which the amber is brought, is a distance of about six hundred miles, a fact which has been only very recently ascertained; and there is still living a member of the equestrian order, who was sent thither by Julianus, the manager of the gladiatorial exhibitions for the Emperor Nero, to procure a supply of this article. Traversing the coasts of that country and visiting the various markets there, he brought back amber, in such vast quantities, as to admit of the nets, which are used for protecting the podium[89] against the wild beasts, being studded[90] with amber.

The arms too, the litters,[91] and all the other apparatus, were, on one day, decorated with nothing but amber, a different kind of display being made each day that these spectacles were exhibited. The largest piece of amber that this personage brought to Rome was thirteen pounds in weight.

That amber is found in India too, is a fact well ascertained. Archelaüs, who reigned over Cappadocia, says that it is brought from that country in the rough state, and with the fine bark still adhering to it, it being the custom there to polish it by boiling it in the grease of a sucking-pig. One great proof that amber must have been originally in a liquid state, is the fact that, owing to its transparency, certain objects are to be seen within, ants for example, gnats, and lizards. These, no doubt, must have first adhered to it while liquid, and then, upon its hardening, have remained enclosed within.[92]

### CHAP. 12.—THE SEVERAL KINDS OF AMBER: THE REMEDIES DERIVED FROM IT.

There are several kinds[93] of amber. The white is the one

[88] Goitre, for example.

[89] The projecting part in the Circus or Amphitheatre, next the arena, and immediately in front of the place occupied by the emperor and nobles.

[90] The knots, probably, were adorned with studs or buttons of amber.

[91] "Libitina." Meaning the litters on which the slain gladiators were carried away from the arena.

[92] Martial has three Epigrams on Insects enclosed in amber; B. iv. Ep. 32 and 59, and B. vi. Ep. 15.

[93] These so-called kinds or varieties are mostly accidental variations only in appearance.

that has the finest odour;[94] but neither this nor the wax-coloured amber is held in very high esteem. The red amber is more highly valued; and still more so, when it is transparent, without presenting too brilliant and igneous an appearance. For amber, to be of high quality, should present a brightness like that of fire, but not flakes resembling those of flame. The most highly esteemed amber is that known as the "Falernian," from its resemblance to the colour of Falernian wine; it is perfectly transparent, and has a softened, transparent, brightness. Other kinds, again, are valued for their mellowed tints, like the colour of boiled honey in appearance. It ought to be known, however, that any colour can be imparted to amber that may be desired, it being sometimes stained with kid-suet and root of alkanet; indeed, at the present day, amber is dyed purple even. When a vivifying heat has been imparted to it by rubbing it between the fingers, amber will attract chaff, dried leaves, and thin bark, just in the same way that the magnet attracts iron. Pieces of amber, steeped in oil, burn with a more brilliant and more lasting flame than pith of flax.[95]

So highly valued is this as an object of luxury, that a very diminutive human effigy, made of amber, has been known to sell at a higher price than living men even, in stout and vigorous health. This single ground for censure, however, is far from being sufficient; in Corinthian objects of vertu, it is the copper that recommends them, combined with silver and gold; and in embossed works it is the skill and genius of the artist that is so highly esteemed. We have already said what it is that recommends vessels of murrhine and of crystal; pearls, too, are of use for wearing upon the head, and gems upon the fingers. In the case of all other luxuries, in fact, it is either a spirit of ostentation or some utility that has been discovered in them that pleads so strongly in their behalf; but in that of amber we have solely the consciousness that we are enjoying a luxury, and nothing more. Domitius Nero, among the other portentous extravagances of his life, bestowed this name upon the ringlets of his wife Poppæa, and, in certain verses of his, he has

[94] Which is perceptible on its being rubbed: in some cases the odour of amber is very fine, in others it is perfectly fetid; though in the latter case, as Ajasson remarks, it is doubtful whether it may be considered to be genuine amber.

[95] "Lini." Salmasius suggests "pini," "pith of pine."

even gone so far as to call them "succini." As fine names, too, are never wanting for bodily defects, a third tint has been introduced of late for hair among our ladies, under the name of "amber-colour."

Amber, however, is not without its utility in a medicinal point of view; though it is not for this reason that the women are so pleased with it. It is beneficial for infants also, attached to the body in the form of an amulet; and, according to Callistratus, it is good for any age, as a preventive of delirium and as a cure for strangury, either taken in drink or attached as an amulet to the body. This last author, too, has invented a new variety of amber; giving the name of "chryselectrum"[96] to an amber of a golden colour, and which presents the most beautiful tints in the morning. This last kind attracts flame, too, with the greatest rapidity, and, the moment it approaches the fire, it ignites. Worn upon the neck, he says, it is a cure for fevers and other diseases, and, triturated with honey and oil of roses, it is good for maladies of the ears. Beaten up with Attic honey, it is good for dimness of sight; and the powder of it, either taken by itself or with gum mastich in water, is remedial for diseases of the stomach. Amber, too, is greatly in request for the imitation of the transparent precious stones, amethystos in particular: for, as already stated, it admits of being dyed of every colour.

### CHAP. 13.—LYNCURIUM: TWO ASSERTED REMEDIES.

The pertinacity that has been displayed by certain authors compels me to speak of lyncurium[97] next; for even those who maintain that it is not a variety of amber, still assure us that it is a precious stone. They assert, too, that it is a product of the urine of the lynx and of a kind of earth, the animal covering up the urine the moment it has voided it, from a jealousy that man should gain possession of it; a combination which hardens into stone. The colour of it, they inform us,

[96] "Golden amber." Brotero thinks that this must have been Hyacinth or Zirconite of a yellowish white colour. Ajasson says that the description would equally apply to Idocrase, Meionite, or Harmotome.

[97] See Note 74, above. Brotero identifies it with orange-coloured Hyacinth; Ajasson and Desfontaines with Tourmaline. Ajasson suggests, also, that the first syllable in its name—*Lync*, may have been derived from the Sanscrit *Lanka*, the name of Ceylon, one of the localities where the Tourmaline is chiefly found.

like that of some kinds of amber, is of a fiery[98] hue, and it admits, they say, of being engraved. They assert, too, that this substance attracts[99] to itself not only leaves or straws, but thin plates of copper even or of iron; a story which Theophrastus even believes, on the faith of a certain Diocles.

For my own part, I look upon the whole of these statements as untrue, and I do not believe that in our time there has ever been a precious stone seen with such a name as this. I regard, too, the assertions that have been made as to its medicinal properties, as equally false; to the effect that, taken in drink, it disperses urinary calculi, and that, taken in wine, or only looked at, it is curative of jaundice.

### CHAP. 14.—THE VARIOUS PRECIOUS STONES, CLASSIFIED ACCORDING TO THEIR PRINCIPAL COLOURS.

We will now proceed to speak of the various kinds of precious stones, the existence of which is generally admitted, beginning with those which are the most highly esteemed. Nor shall we content ourselves with doing this only; but, with the view of consulting the general welfare of mankind, we shall also refute the infamous lies that have been promulgated by the magicians: for it is with reference to precious stones, more particularly, that they have circulated most of their fabulous stories, stepping, under that most alluring guise of ascertaining remedial virtues, beyond all bounds, and entering the region of the marvellous.

### CHAP. 15. (4.)—ADAMAS; SIX VARIETIES OF IT. TWO REMEDIES.

The substance that possesses the greatest value, not only among the precious stones, but of all human possessions, is adamas;[1] a mineral which, for a long time, was known to kings

[98] Ajasson thinks that Rubellite or Red Tourmaline is here alluded to.

[99] This is the case with tourmaline when subjected to heat.

[1] We may here remark, that throughout this Book, in all cases where there is any doubt as to the identification of the substance, the ancient name is retained. Hence our words "adamant" and "diamond." If Pliny means the latter, which is doubtful, it still maintains the rank here assigned to it. The word "adamas" is supposed to be derived from the Greek ἀ, privative, and δαμάω, "to subdue," it being supposed to be invincible by fire. The diamond is pure carbon crystallized, and is thought to have been of vegetable origin. Dana has the following remarks upon the word "adamas."—"This name was applied by the ancients to several minerals differing much in their physical properties. A few of these are quartz,

only, and to very few of them. Such was the name given to a nodosity of gold,[2] sometimes, though but rarely, found in the mines, in close proximity with gold, and only there to be found, it was thought. The ancients supposed that adamas was only to be discovered in the mines of Æthiopia,[3] between the Temple of Mercury and the island of Meroë; and they have informed us that it was never larger than a cucumber-seed, or differing at all from it in colour.

At the present day, for the first time, there are no less than six different varieties of it recognized. The Indian adamas is found, not in a stratum of gold, but in a substance of a kindred nature to crystal; which it closely resembles in its transparency and its highly polished hexangular and hexahedral[4] form. In shape it is turbinated, running to a point at either extremity, and closely resembling, marvellous to think of, two cones united at the base. In size, too, it is as large even as a hazel-nut. Resembling that of India, is the adamas[5] of Arabia, which is found in a similar bed, but not so large in size. Other varieties have a pallid hue like that of silver, and are only to be found in the midst of gold of the very finest quality. These stones are tested upon the anvil, and will resist the blow to such an extent, as to make the iron rebound and the very anvil split asunder.[6] Indeed its hardness is beyond all expression, while at the same time it quite sets fire at defiance[7] and is incapable of being heated; owing to

specular iron ore, emery, and other substances of rather high degrees of hardness, which cannot now be identified. It is doubtful whether Pliny had any acquaintance with the real diamond."—*System of Mineralogy*, Art. *Diamond*. We may also add, from the same authority, that the method of polishing diamonds was first discovered in 1456, by Louis Berquen, a citizen of Bruges, previous to which time the diamond was only known in its native uncut state.

[2] This statement cannot apply to the "diamond" as known to us, though occasionally grains of gold have been found in the vicinity of the diamond.

[3] Ajasson is of opinion that the Æthiopia here mentioned is in reality India, and that the "Temple of Mercury" means the *Brahmaloka*, or Temple of Brahma.

[4] The diamond, as known to us, is octahedral.

[5] Though found in comparative abundance in India, the diamond is not found in Arabia.

[6] This is not the case with the diamond; for on being struck under such circumstances, it will break.

[7] In reality, the diamond will burn, and, at a temperature of 14° Wedgewood, is wholly consumed, producing carbonic acid gas.

which indomitable powers it is, that it has received the name which it derives from the Greek.[8]

One kind, about as large as a grain of millet in size, has been called "cenchros,"[9] and another,[10] that is found in the gold mines at Philippi, is known as the "Macedonian" adamas: this last is about as large as a cucumber-seed in size. We next come to the Cyprian[11] adamas, so called from its being found in the Isle of Cyprus: it is of a colour somewhat inclining to that of copper, but, in reference to its medicinal virtues, of which we shall have to make further mention, it is the most efficacious of them all. Next in succession to this we have siderites,[12] a stone which shines like iron, and is more ponderous than any of the others, but differs in its properties from them all. For it breaks when struck by the hammer, and admits of being perforated by other kinds of adamas; a thing which is the case, also, with that of Cyprus: in short, these two are degenerate stones, and only bear the name of "adamas" for the purpose of enhancing their value.

Now with reference to those affinities and repugnances which exist between certain objects, known to the Greeks as "sympathia" and "antipathia," phænomena to which we have endeavoured[13] to draw attention throughout these books, they nowhere manifest themselves with greater distinctness than here. This indomitable power, in fact, which sets at nought the two most violent agents in Nature, fire, namely, and iron, is made to yield before the blood of a he-goat.[14] The blood, however must be no otherwise than fresh and warm; the stone, too, must be well steeped in it, and then subjected to repeated blows: and even then, it is apt to break both anvils and hammers of iron, if they are not of the very finest temper. To what spirit of research, or to what accident, are we indebted for this discovery? or what conjecture can it have been, that first

[8] See Note 1, above. [9] "Millet-seed."

[10] Ajasson says, that no doubt this adamas was Adamantine, or limpid Corundum.

[11] Ajasson suggests that this may have been Dichroite, or Cordierite, known also as Iolite, or Water sapphire.

[12] Possibly the Siderite, sparry iron, or spathic iron of modern Mineralogy. Ajasson is inclined to think that it is Corundum, of a dark hue.

[13] See B. xx. c. 1, B. xxviii. cc. 23, 41, and B. xxxii. c. 12

[14] Brotero thinks that this was a story invented by the dealers, with a view of concealing the real method of breaking the stone.

led man to experiment upon a thing of such extraordinary value as this, and that, too, with the most unclean[15] of all animals? Surely a discovery, such as this, must have been due solely to the munificence of the gods, and we must look for the reason of it in none of the elementary operations of Nature, but wholly in her will.

When, by good fortune, this stone does happen to be broken, it divides into fragments so minute as to be almost imperceptible. These particles are held in great request by engravers, who enclose them in iron, and are enabled thereby, with the greatest facility, to cut[16] the very hardest substances known. So great is the antipathy borne by this stone to the magnet, that when placed near, it will not allow of its attracting iron; or if the magnet has already attracted the iron, it will seize the metal and drag it away from the other.[17] Adamas, too, overcomes and neutralizes poisons, dispels delirium, and banishes groundless perturbations of the mind; hence it is that some have given it the name of "ananchites."[18] Metrodorus of Scepsis is the only author, that I know of, who says that this stone is found also in Germany, and in the island of Basilia,[19] where amber is found. He says, too, that this is preferable to the stone of Arabia; but can there be any doubt that his statement is incorrect?

### CHAP. 16.—SMARAGDUS.

Next[20] in esteem with us are the pearls of India and Arabia, of which we have already spoken in the Ninth Book,[21] when treating of the marine productions.

(5.) The third rank, for many reasons, has been given to

[15] Said, probably, with reference to the rank, nauseous smell of the he-goat.

[16] This is true with reference to the diamond, and, in a less degree, several other crystalline substances, emery and quartz, for example.

[17] Ajasson remarks, that if the diamond is placed in the magnetic line or current of the loadstone, it attracts iron equally with the loadstone, and consequently neutralizes the attractive power of the loadstone in a considerable degree.

[18] The reading is very doubtful here. This word, as it is here given, would appear to be derived from the Greek ἀ privative, and ἀγχομαι, "to strangle oneself," and to mean, "preventive of suicide."

[19] See B. iv. c. 27, and Chapter 11 of this Book.

[20] At the present day the ruby is next in esteem to the diamond.

[21] Chapter 54, *et seq.*

the smaragdus.[22] Indeed there is no stone, the colour of which is more delightful to the eye; for whereas the sight fixes itself with avidity upon the green[23] grass and the foliage of the trees, we have all the more pleasure in looking upon the smaragdus, there being no green in existence of a more intense colour[24] than this. And then, besides, of all the precious stones, this is the only one that feeds the sight without satiating it. Even when the vision has been fatigued with intently viewing other objects, it is refreshed by being turned upon this stone; and lapidaries know of nothing that is more gratefully soothing to the eyes, its soft green tints being wonderfully adapted for assuaging lassitude, when felt in those organs.

And then, besides, when viewed from a distance, these stones appear all the larger to the sight, reflecting as they do, their green hues upon the circumambient air. Neither sunshine, shade, nor artificial light effects any change in their appearance; they have always a softened and graduated brilliancy; and transmitting the light with facility, they allow the vision to penetrate their interior; a property which is so pleasing, also, with reference to water. In form they are mostly concave, so as to re-unite the rays of light and the powers of vision: and hence it is, that it is so universally agreed upon among mankind to respect these stones; and to forbid their surface[25] to be engraved. In the case, however, of the stones of Scythia and Egypt, their hardness is such, that it would be quite impossible to penetrate them. When the surface of the smaragdus is flat, it reflects the image of objects in the same manner as a mirror. The Emperor Nero used to view[26] the combats of the gladiators upon a smaragdus.

[22] The Emerald, and various other green precious stones, were included under this name.

[23] "Virentes" seems a very preferable reading to "silentes," as given by the Bamberg MS.

[24] The emerald is supposed to derive this colour from a minute portion of oxide of chrome.

[25] Engraved emeralds are but seldom found among collections of ancient gems. In 1593, there was one found in the tomb of Maria, daughter of Stilicho, in the Vatican, with the head of Honorius, her husband, engraved upon it.

[26] "It may here be objected that real emeralds are too small to admit of being used as mirrors; but the ancients speak of some sufficiently large for that purpose, and also of artificial ones; so that we may with certainty conclude, that they classed among the emeralds fluor spar, green vitrified

CHAP. 17.—TWELVE VARIETIES OF THE SMARAGDUS.

Of this stone there are no less than twelve different kinds; of which the finest is the Scythian[28] smaragdus, so called from the country where it is found. None of them has a deeper colour than this, or is more free from defects: indeed, in the same degree that the smaragdus is superior to other precious stones, the Scythian smaragdus is superior to the other varieties. Next in esteem to this, as also in locality, is the smaragdus of Bactriana.[29] These stones are collected, it is said, in the fissures of rocks, when the Etesian[30] winds prevail; a period at which the earth that covers them is removed, and the stones are detected by their brightness, the sands being greatly agitated by the action of the winds. These last, however, are much inferior, they say, to those of Scythia in size. The third rank is held by the stones of Egypt,[31] which are extracted from the hills in the vicinity of Coptos, a city of Thebais.

All the other kinds are found in copper-mines, and hence it is that, of these varieties, the smaragdus of Cyprus holds the highest rank. The merit of them consists in their clear colour, which has nothing thin or diluted in it, but presents a rich and humid transparency, closely resembling the tints of the sea, in fact. Hence it is that these stones are at once diaphanous and shining, or, in other words, reflect their colours and allow the vision to penetrate within. They say that in this island, upon the tomb of a petty king named Hermias, near the fisheries[32] there, there was formerly a lion in marble, with eyes made of smaragdi; the brilliancy of which penetrated

lava, or the green Icelandic agate, as it is called, green jasper, and also green glass."—Beckmann, Hist. Inv. Vol. II. p. 67. *Bohn's Edition.* It has also been suggested, with reference to this passage, that Nero was short-sighted, and that this emerald was formed like a concave lens. The passage, however, will hardly support such a construction. Ajasson thinks that it must have been a Dioptase or Siberian emerald; or else a green Corundum.

[28] Ajasson is of opinion that the Dioptase, Siberian emerald, or Malachite emerald is meant.

[29] Ajasson thinks that this may be the Dioptase or Achirite of Chinese Bucharia; and that the merchant Achir Mahmed, from whom it takes its name, was by no means the first to introduce it, or to circulate his wonderful stories as to its formation.

[30] See B. ii. cc. 47, 48, and B. xviii. c. 74.

[31] Mount Zalora, in Upper Egypt, still produces emeralds, and was probably the only locality of the *genuine* stone that was known to the ancients.

[32] "Cetarias."

the sea to such a degree, as to alarm the tunnies and put them to flight: a novel circumstance, which for a long time excited wonder in the fishermen, till at last the stones in the statue were changed for others.

### CHAP. 18.—DEFECTS IN THE SMARAGDUS.

It will be only proper, too, seeing that the prices of these stones are so exorbitant, to point out their defects. Some defects, no doubt, are common to all of them, while others, again, like those found in the human race, are peculiar only to those of a certain country. Thus, for example, the stones of Cyprus are not all green alike, and in the same smaragdus some parts are more or less so than others, the stone not always preserving that uniform deep tint which characterizes the smaragdus of Scythia. In other instances, a shadow runs through the stone, and the colour becomes dulled thereby; the consequence of which is, that its value is depreciated; and even more so, when the colour is thin and diluted.

In consequence of the defects[33] in these stones, they have been divided into several classes. Some of them are obscure, and are then known as "blind" stones; some have a certain density, which impairs their transparency; others, again, are mottled, and others covered with a cloud. This cloud, however, is altogether different from the shadow above mentioned; for it is a defect which renders the stone of a whitish hue, and not of a transparent green throughout; presenting, as it does, in the interior or upon the surface, a certain degree of whiteness which arrests the vision. Other defects, again, in these stones, are filaments, salt-like[34] grains, or traces of lead ore, faults which are mostly common to them all.

Next after the kinds above described, the smaragdus of Æthiopia is held in high esteem; being found, as Juba tells us, at a distance of twenty-five days' journey from Coptos. These are of a bright green, but are seldom to be met with perfectly clear or of an uniform colour. Democritus includes in this class the stones that are known as "herminei," and as "Persian" stones; the former of which are of a convex,

[33] Ajasson remarks that the greater part of the defects here described belong in reality to the Dioptase.

[34] "Sal." See Chapters 8, 10, 22, and 37, of this Book.

massive shape, while the latter are destitute of transparency, but have an agreeable, uniform colour, and satisfy the vision without allowing it to penetrate them; strongly resembling, in this respect, the eyes of cats and of panthers, which are radiant without being diaphanous. In the sun, he says, they lose their brilliancy, but they are radiant in the shade, the brightness of them being seen at a greater distance than in the case of other stones. One other fault, too, in all these stones is, that they often have a colour like that of honey or rancid oil, or else are clear and transparent, but not green.

These defects exist in the smaragdi of Attica,[35] more particularly, which are found in the silver-mines there, at a place known by the name of Thoricos.[36] These last are never so massive as the others, and are always more pleasing to the sight when viewed from a distance: lead ore, too, is often to be detected in them, or, in other words, they have a leaden appearance when looked at in the sun.[37] One peculiarity in them is, that some of them become impaired by age, gradually lose their green colour, and are even deteriorated by exposure to the sun. Next to the stones of Attica come those of Media, a variety which presents the most numerous tints of all, and sometimes approaches sapphiros[38] in colour. These stones are wavy,[39] and represent various natural objects, such as poppy-heads, for example, birds, the young of animals, and feathers: all of them appear naturally of a green colour, but become improved by the application of oil. No stones of this species are of a larger size than these.

I am not aware that any of these stones[40] are still in existence at Chalcedon, the copper mines of that locality being now exhausted: but be this as it may, they were always the smallest in size and the most inferior in value. Brittle, and of a colour

[35] Ajasson is of opinion that Diallage is here meant, known also by the names of Bronzite, schillerspath, schillerstein, and omphasite.

[36] See B. iv. c. 11.

[37] "In sole" seems a preferable reading to "in solo," "on the ground," as given by the Bamberg MS.

[38] See Chapter 39 of this Book; where it will be shown that this probably is not the modern Sapphire.

[39] Ajasson suggests that these may have been Quartz agates of the dendritic or arborized kind.

[40] He probably alludes here to some variety of the Chalcedony or Opal quartz.

far from distinctly pronounced, they resembled in their tints the feathers that are seen in the tail of the peacock or on the necks of pigeons.[40*] More or less brilliant, too, according to the angle at which they were viewed, they presented an appearance like that of veins and scales. There was another defect, also, peculiar to these stones, known as "sarcion," from the circumstance that a kind of flesh[41] appeared to attach itself to the stone. The mountain near Chalcedon, where these stones were gathered, is still known by the name of "Smaragdites." Juba informs us that a kind of smaragdus, known as "cloras,"[42] is used in Arabia as an ornament for buildings, as also the stone which by the people of Egypt is called "alabastrites." On the same authority, too, we learn that there are several varieties of the smaragdus in the neighbouring mountains, and that stones like those of Media are found in Mount Taygetus,[43] as also in Sicily.

### CHAP. 19.—THE PRECIOUS STONE CALLED TANOS. CHALCOSMARAGDOS.

Among the smaragdi is also included the precious stone known as "tanos."[44] It comes from Persia, and is of an unsightly green, and of a soiled colour within. There is the chalcosmaragdos[45] also, a native of Cyprus, the face of which is mottled with coppery veins. Theophrastus relates that he had found it stated in the Egyptian histories, that a king of Babylon once sent to the king of Egypt a smaragdus[46] four

[40*] Said with reference to Chrysoprase, Ajasson thinks; a leek-green chalcedony, coloured by nickel.

[41] Probably the Cacholong of modern mineralogy, a variety of opal, nearly opaque, and of a porcelain or bluish white colour.

[42] Ajasson and Brotero identify this with milk-white chalcedony; but on what authority, does not appear.

[43] See B. iv. c. 8.

[44] Supposed by Ajasson to be the Euclase, a brittle green stone, composed of silica, alumina, and glucina. Haüy gave it this name from the Greek words *ευ*, "easily," and *κλάω*, "to break." According to Dana, however, Euclase was first brought from Peru: if such is the fact, we must, perhaps, look for its identification in Epidote, a green silicate of alumina.

[45] "Brazen smaragdus." It was probably Dioptase, combined with copper Pyrites. See Notes 26, 28, and 29, above.

[46] With reference to this statement and the others in this Chapter, Ajasson remarks that these stones can have been nothing but prases, green jaspers, fusible spaths, emerald quartz, and fluates of lime.

cubits in length by three in breadth. He informs us, also, that in a temple of Jupiter in Egypt there was an obelisk made of four smaragdi, forty cubits in length, and four in breadth at one extremity, and two at the other. He says, too, that at the period at which he wrote, there was in the Temple of Hercules at Tyrus a large column made of a single smaragdus;[47] though very possibly it might only be pseudo-smaragdus, a kind of stone not uncommonly found in Cyprus, where a block had been discovered, composed, one half of smaragdus, and one half of jasper,[48] and the liquid in which had not as yet been entirely transformed. Apion, surnamed "Plistonices,"[49] has left a very recent statement, that there was still in existence, in his time, in the Labyrinth of Egypt, a colossal statue of Serapis made of a single smaragdus, nine cubits in height.

### CHAP. 20. — BERYLS: EIGHT VARIETIES OF THEM. DEFECTS IN BERYLS.

Beryls, it is thought, are of the same[50] nature as the smaragdus, or at least closely analogous. India[51] produces them, and they are rarely to be found elsewhere. The lapidaries cut all beryls of an hexagonal[52] form; because the colour, which is deadened by a dull uniformity of surface, is heightened by the reflection resulting from the angles. If they are cut in any other way, these stones have no brilliancy whatever. The most esteemed beryls are those which in colour resemble the pure green of the sea;[53] the chrysoberyl[54] being next in value, a stone of a somewhat paler colour, but approaching a golden tint. Closely allied to this last in its brilliancy, but of a more pallid

[47] Herodotus mentions this smaragdus and the temple, B. ii. c. 44, as having been seen by himself.

[48] "Iaspis." See Chapter 37 of this Book.

[49] Meaning "the conqueror of many," probably; in reference to his contentious disposition. See end of B. xxx.

[50] The Beryl and the Emerald are only varieties of the same species, the latter owing its colour to oxide of chrome, the former to oxide of iron.

[51] The best Beryls are found in Siberia, Hindostan, Brazil, and the United States.

[52] The crystals are naturally hexagonal.

[53] Hence the name of the sky-blue, or mountain-green beryl, *aqua-marine*.

[54] Or "golden beryl." The modern Chrysoberyl is altogether a different stone from the one here described, which probably is identical with Chrysoprase or leek-green Chalcedony, the stone next mentioned.

colour, and thought by some to constitute a separate genus, is chrysoprasus.[55] In the fourth rank are reckoned the hyacinthine beryls; and in the fifth, those known as "aëroides."[56] Next, we have the wax-coloured beryls, and, after them, the oleaginous beryls, so called from the resemblance of their colour to that of oil. Last of all, there are the stones which closely resemble crystal in appearance; mostly disfigured by spots and filaments, and of a poor, faint, colour as well; all of them so many imperfections in the stone.

The people of India are marvellously fond of beryls of an elongated[57] form, and say that these are the only precious stones they prefer wearing without the addition of gold: hence it is that, after piercing them, they string them upon the bristles of the elephant. It is generally agreed, however, that those stones should not be perforated which are of the finest quality; and in this case they only enclose the extremities of them in studs of gold. They prefer, too, cutting the beryls in a cylindrical form, instead of setting them as precious stones; an elongated shape being the one that is most highly esteemed. Some are of opinion that beryls are naturally angular,[58] and that when pierced they become improved in colour, the white substance being thus removed that lies within, and their brilliancy heightened by the reflection of the gold in which they are set; or, at all events, their transparency being increased by this diminution in their thickness. In addition to the defects already[59] mentioned, and which are pretty nearly the same as those to which the smaragdus is subject, beryls are affected with cloudy spots,[60] like those on the finger-nails in appearance. In our own part of the world, it is thought that they are sometimes found in the countries that lie in the vicinity of Pontus.[61] The people of India, by colouring crystal, have found a method of imitating various precious stones, beryls in particular.

### CHAP. 21. (6.)—OPALS: SEVEN VARIETIES OF THEM.

Opals[62] are at once very similar to, and very different from,

[55] "Leek-green and gold." [56] "Sky-coloured."

[57] The largest specimen of Beryl known, belonged to Don Pedro. It was not cylindrical in form, but shaped like the head of a calf, and weighed 225 ounces troy.

[58] Which is the case. [59] In Chapter 18 of this Book. [60] "Pterygia."

[61] In the Uralian Mountains, for example.

[62] Opals are hydrated silica, the amount of water varying.

beryls, and only yield to the smaragdus in value. India, too, is the sole[63] parent of these precious stones, thus completing her glory as being the great producer of the most costly gems. Of all precious stones, it is opal that presents the greatest difficulties of description, it displaying at once the piercing fire of carbunculus,[64] the purple brilliancy of amethystos, and the sea-green of smaragdus, the whole blended together and refulgent with a brightness that is quite incredible. Some authors have compared the effect of its refulgence to that of the colour known as Armenian[65] pigment, while others speak of it as resembling the flame of burning sulphur, or of flame fed with oil. In size, the opal is about as large as a hazel-nut,[66] and, with reference to it, there is a remarkable historical anecdote related. For there is still in existence a stone of this class, on account of which Antonius proscribed the senator Nonius, son of the Nonius Struma, whom the poet Catullus[67] was so displeased at seeing in the curule chair, and grandfather of the Servilius Nonianus, who in our own times was consul.[68] On being thus proscribed, Nonius took to flight, carrying with him, out of all his wealth, nothing but this ring, the value of which, it is well known, was estimated at two millions of sesterces. How marvellous must have been the cruelty, how marvellous the luxurious passion of Antonius, thus to proscribe a man for the possession of a jewel! and no less marvellous must have been the obstinacy of Nonius, who could thus dote upon what had been the cause of his proscription; for we see the very brutes even tear off the portion of their body for the sake of which they know their existence to be imperilled,[69] and so redeem themselves by parting with it.

CHAP. 22.—DEFECTS IN OPALS; THE MODES OF TESTING THEM.

Defects in opal are, a colour inclining to that of the flower called heliotropium,[70] or to that of crystal or of hailstones; salt-like grains intervening; roughness on the surface; or sharp

[63] On the contrary, precious Opal is found in Hungary, at Frankfort, and in Honduras, and other varieties in numerous parts of the world, including the East Indies.

[64] See Chapter 25 of this Book. [65] See B. xxxv. c. 28.

[66] The largest opal known is in the Imperial cabinet at Vienna. It is the size of a man's fist, and weighs 17 ounces, but is full of fissures.

[67] See Carm. 53 of the Poems of Catullus. [68] A.U.C. 788.

[69] See B. viii. c. 47. He alludes to the story of the Beaver.

[70] See B. xxii. c. 29.

points, presenting themselves to the eye. There is no stone that is imitated by fraudulent dealers with more exactness than this, in glass, the only mode of detecting the imposition being by the light of the sun. For when a false[71] opal is held between the finger and thumb, and exposed to the rays of that luminary, it presents but one and the same transparent colour throughout, limited to the body of the stone: whereas the genuine opal offers various refulgent tints in succession, and reflects now one hue and now another, as it sheds its luminous brilliancy upon the fingers.

This stone, in consequence of its extraordinary beauty, has been called "pæderos"[72] by many authors; and some who make a distinct species of it, say that it is the same as the stone that in India is called "sangenon." These last-mentioned stones, it is said, are found in Egypt also, Arabia, and, of very inferior quality, in Pontus. Galatia, too, is said to produce them, as also Thasos and Cyprus. The finest in quality of them have all the beauty of opal, but they are of a softer brilliancy, and are mostly rough on the surface. Their colour is a mixture of sky-blue and purple, and the green hues of the smaragdus are wanting: those, too, are preferred, which have their brilliancy deepened by a vinous hue, rather than those which have their colours diluted, as it were, with water.

### CHAP. 23.—SARDONYX; THE SEVERAL VARIETIES OF IT. DEFECTS IN THE SARDONYX.

Thus far we have spoken in reference to the stones, which, it is generally agreed, belong to the highest rank; in obedience, more particularly, to a decree[73] that has been passed by the ladies to that effect. There is less certainty with respect to those upon which the men as well have been left to form a judgment; seeing that the value of each stone depends more particularly upon the caprice of the individual and the rivalry that exists in reference thereto; as, for example, when Claudius Cæsar was so much in the habit of wearing the smaragdus and the sardonyx.[74] The first Roman who wore a sardonyx, according to Demostratus, was the elder Africanus, since whose

[71] This is the case with *common* opal, as distinguished from *precious* opal.

[72] "Lovely youth."

[73] Said ironically. There is a somewhat similar remark in B. xxxiii. c. 12.

[74] A mixture of brown-red and white chalcedony.

time this stone has been held in very high esteem at Rome: for which reason, we shall give it the next place after the opal. By sardonyx, as the name[75] itself indicates, was formerly understood a sarda with a white ground beneath it, like the flesh beneath the human finger-nail; both parts of the stone being equally transparent. Such, according to Ismenias, Demostratus, Zenothemis, and Sotacus, is the sardonyx of India; the last two giving the name of "blind" sardonyx to all the other stones of this class which are not transparent, and which have now entirely appropriated the name to themselves. For, at the present day, the Arabian sardonyx presents no traces whatever of the Indian sarda,[76] it being a stone that has been found to be characterized by several different colours of late; black or azure for the base, and vermilion, surrounded with a line of rich white, for the upper part, not without a certain glimpse[77] of purple as the white passes into the red.[78]

We learn from Zenothemis that in his time these stones were not held by the people of India in any high esteem, although they are found there of so large a size as to admit of the hilts of swords being made of them. It is well known, too, that in that country they are exposed to view by the mountain-streams, and that in our part of the world they were formerly valued from the fact that they are nearly the only ones[79] among the engraved precious stones that do not bring away the wax when an impression is made. The consequence is, that our example has at last taught the people of India to set a value upon them, and the lower classes there now pierce them even, to wear them as ornaments for the neck; the great proof, in fact, at the present day, of a sardonyx being of Indian origin. Those of Arabia are remarkable for their marginal line of brilliant white, of considerable breadth, and not glistening in hollow fissures in the stone or upon the sides, but shining upon the very surface, at the margin, and supported by a ground intensely black beneath. In the stones of India, this ground

[75] From the Greek Σάρδιον, "sard," and ὄνυξ, a "finger nail."

[76] His meaning seems to be that it does not present the bright transparent red of the Indian Sarda or Carnelian. See Chaper 31 of this Book.

[77] "Quâdam spe." *Un soupçon*, as the French would say.

[78] This would appear, from the description, to be an Agate, or variegated Chalcedony.

[79] He probably intends to include the Sarda or Carnelian here.

is like wax in colour,[80] or else like cornel, with a circle also of white around it. In some of these stones, too, there is a play of colours like those of the rainbow, while the surface is redder even than the shell of the sea-locust.[81]

Those stones which are like honey in appearance, or of a fæculent[82] colour—such being the name given to one defect in them—are generally disapproved of. They are rejected also when the white zone blends itself with the other colours, and its limits are not definitely marked; or if, in like manner, it is irregularly intersected by any other colour; it being looked upon as an imperfection if the regularity of any one of the colours is interrupted by the interposition of another. The sardonyx of Armenia is held in some esteem, but the zone round it is of a pallid hue.

### CHAP. 24.—ONYX: THE SEVERAL VARIETIES OF IT.

We must give some account also of onyx,[83] because of the name which it partly shares in common with sardonyx. This name, though in some places[84] given to a marble, is here used to signify a precious stone. Sudines says, that in this stone there is a white portion which resembles the white of the human-finger nail, in addition to the colours of chrysolithos, sarda, and iaspis. According to Zenothemis, there are numerous varieties of the Indian onyx, the fiery-coloured, the black, and the cornel, with white veins encircling them, like an eye as it were, and in some cases running across them obliquely.[85] Sotacus mentions an Arabian onyx, which differs from the rest; that of India, according to him, presenting small flames,[86] each surrounded by one or more white zones; in a manner altogether different from the Indian sardonyx, which presents a series of white specks, while in this case it is one continuous circle. The Arabian onyx, on the other hand, is black, he says, with a white zone encircling it.

Satyrus says, that there is an onyx in India of a flesh

[80] A variety, probably, of common Chalcedony.

[81] See B. ix. cc. 74, 88, and B. xxxii. c. 53.

[82] "Fæculentæ," of the colour of wine-lees.

[83] So called from ὄνυξ, a "finger-nail." It is a variety of the Chalcedony, resembling Agate, but the colours are arranged in flat horizontal planes.

[84] See B. xxxiv. c. 22, and B. xxxvi. c. 12.

[85] It is pretty clear that the Onyx of Pliny included not only our Onyx, but several other varieties of the Chalcedony.

[86] "Igniculos."

colour,[87] partly resembling carbunculus, and partly chrysolithos and amethystos; a variety, however, which he altogether disapproves of. The real onyx, according to him, has numerous veins of variegated colours, interspersed with others of a milk-white hue: the shades of which, as they pass into one another, produce a tint which surpasses all description, and blends itself into one harmonious whole, of a most beautiful appearance.

Not unlike sardonyx, too, is sarda,[88] a stone which also has, in part, a kindred name with it; but before passing on to it, we must first take some notice of all those precious stones which have a brilliancy like that of flame.

CHAP. 25. (7.)—CARBUNCULUS: TWELVE VARIETIES OF IT.

In the first rank among these is carbunculus,[89] so called from its resemblance to fire; though in reality it is proof against the action of that element:[90] hence it is that some persons call these stones "acaustoi."[91] There are various kinds of carbunculus, the Indian and the Garamantic, for example, which last has been also called the Carchedonian,[92] in compliment to the former opulence of Great Carthage.[93] To these are added the Æthiopian and the Alabandic stones, the latter of which are found at Orthosia[94] in Caria, but are cut and polished at Alabanda.[95] In addition to this, each kind is subdivided into the male carbunculus and the female, the former of which is of a

[87] "Carnosas." It is somewhat doubtful whether our Carnelian, or Cornelian, take its name from this word, or from "cornus," a cornel-berry.

[88] See Chapter 31.

[89] Literally meaning a "red-hot coal." The carbunculus of Pliny is supposed to include not only the red, or Iron and Iron-lime garnet, but the Spinelle ruby also, or Oriental ruby.

[90] There is some truth in this, as some few kinds both of the Garnet and Ruby are infusible. Of the ruby, the red varieties change to brown, black, and opaque even, as the temperature increases, and on cooling become first green, and then nearly colourless, but at last resume their red colour.

[91] From the Greek; meaning "incombustible."

[92] From Καρχήδων, the Greek name for Carthage.

[93] Carthago Magna, so called in contradistinction to Carthage Nova, or New Carthage, in Spain.

[94] See B. v. c. 29.

[95] In the vicinity of Orthosia. It is from this place that one kind of garnet is now called "Almandine." There is also the Almandine, or violet-coloured ruby. See Beckmann, Hist. Inv. Vol. II. p. 238. *Bohn's Edition.* It is probable that Carthage was the great entrepôt for the carbunculi of the Garamantes and Æthiopia, where Red sapphire, Red corundum, or Oriental ruby, was probably found.

more striking brilliancy, the brightness of the latter being not so strong. In the male varieties too, we see some in which the fire is clearer than in others; while some, again, are of a darker[96] hue, or else have their brilliancy more deeply seated, and shine with a more powerful lustre than others when viewed in the sun.

The most highly esteemed, however, is the amethyst-coloured[97] stone, the fire at the extremity of which closely approaches the violet tint of amethystos: next in value to which, are the stones known as "syrtites," radiant with a wavy, feathery,[98] refulgence. They are found more particularly, it is said, where the reflection is most powerful of the rays of the sun. Satyrus says that the carbunculus[98*] of India has no lustre, that it is mostly soiled, and that in all cases its brilliancy is of a tawny complexion. The Æthiopian stones, he says, are dense, emit no lustre, and burn with a concentrated flame. According to Callistratus, the refulgence of this stone should be of a whitish hue, and, when placed upon a table, it should heighten by its lustre other stones placed near it that are clouded at the edge. Hence it is, that many writers speak of this stone as the white carbunculus, while the Indian stone, with its comparatively feeble lustre, is known by the name of "lignyzon."[99] The Carchedonian stones, they say, are of much smaller size than the others; but those of India admit of being hollowed out, and making vessels that will hold as much as one sextarius[1] even.

According to Archelaüs, the Carchedonian carbunculus is of a more swarthy appearance than the others, but, when exposed to the light of the fire or sun, and viewed obliquely, the brilliancy of it is much more intense than that of the rest. He says, too, that this stone, when overshadowed by a roof, has a purple tint; that when viewed in the open air, it is of a flame colour;

[96] A variety, perhaps, of Iron garnet, or Iron-lime garnet.

[97] Desfontaines suggests that this may have been the Balas ruby, or possibly the Syrian Garnet, of a violet purple colour. Not improbably it is the Almandine ruby.

[98] "Pinnato fulgore." This mottled appearance is to be seen in the interior of some red garnets. [98*] Common garnets, probably.

[99] Sillig suggests that this may be from λιγνὺς, "soot." The reading, however, is extremely doubtful.

[1] See Introduction to Vol. III. If this is the truth, they were made of some of the crystals of the garnet, probably.

and that, when exposed to the rays of the sun, it scintillates. He states also that wax, if sealed with these stones, in the shade even, will melt. Many authors have asserted that the Indian stones are paler than the Carchedonian, and that, quite the converse of these last, they are all the less brilliant when viewed obliquely; as also, that in the male Carchedonian stone there are luminous points like stars within, while, in the case of the female stone, the whole of its refulgence is thrown beyond it. The stones of Alabanda too, it is said, are darker than the other kinds, and rough on the surface. In the vicinity also of Miletus, there are stones of this description found in the earth, resembling those of Alabanda in colour, and proof against the action of fire.

According to Theophrastus,[2] these stones are to be found also at Orchomenus in Arcadia and in the Isle of Chios;[3] the former[4] of which are of a darker hue, and are used for making mirrors. He says too, that at Trœzen they are found of various colours and mottled with white spots, those found at Corinth being of a more pallid, whitish, hue. He states also, that they are sometimes imported from Massilia. Bocchus informs us in his writings, that these stones are extracted from the ground at Olisipo;[5] at the cost of great labour, however, in consequence of the parched, argillaceous, nature of the soil.

### CHAP. 26.—DEFECTS IN CARBUNCULUS, AND THE MODE OF TESTING IT.

Nothing is more difficult than to distinguish the several varieties of this stone, so great an opportunity do they afford to artistic skill of compelling them to reflect the colours of substances placed beneath. It is possible, they say, to heighten the brilliancy of dull stones, by steeping them for fourteen days in vinegar, this adventitious lustre being retained by them

[2] De Lapid. sec 61.

[3] "Pliny has here committed a gross mistake, which has not been observed by Hardouin. Theophrastus, in the passage alluded to, does not speak of a ruby, but the well-known black marble of Chio; though he calls both *carbunculus*, a name given to the ruby, on account of its likeness to a burning coal, and to the black marble on account of its resemblance to a quenched coal or cinder; and the latter, as well as the Obsidian stone, was sometimes used for mirrors."—Beckmann, Hist. Inv. Vol. II. pp. 67, 68. *Bohn's Edition.* [4] "Illos." He should have said "hos"—"the latter."

[5] See B. iv. c. 35; the present Lisbon.

as many months. They are counterfeited, too, with great exactness in glass; but the difference may be detected with the touchstone; the same being the case also with other artificial stones, as the material is always of a softer nature and comparatively brittle. When thus tested by the stone, hard knots, too, are detected in them; and the weight of the glass counterfeit is always less. In some cases, too, they present small blisters within, which shine like silver.

### CHAP. 27.—ANTHRACITIS.

There is also a fossil stone found in Thesprotia, known as "anthracitis,"[7] and resembling a burning coal[8] in appearance. Those who have stated that it is a native also of Liguria, are mistaken, in my opinion, unless perhaps it was to be found there in their time. Some of these stones, they say, are surrounded with a vein of white. Like those which we have mentioned above, they have a fiery colour, but there is this peculiarity in them, that when thrown into the fire they have all the appearance of becoming quenched and deadened; while, on the other hand, if they are drenched with water, they become doubly glowing.[9]

### CHAP. 28.—SANDASTROS. SANDARESOS.

Of a kindred nature, too, is sandastros,[10] known as "garamantites" by some: it is found in India, at a place of that name, and is a product also of the southern parts of Arabia. The great recommendation of it is, that it has all the appearance of fire placed behind a transparent substance, it burning with star-like scintillations within, that resemble drops of gold, and

[6] Dalechamps thinks that this is the same as the "anthracites" mentioned in B. xxxvi. c. 38, and identifies it either with our Anthracite, or else with pit-coal or bituminous coal. It is much more likely, however, that a precious stone is meant; and, in conformity with this opinion, Brotero and Ajasson have identified it with the Spinelle or scarlet Ruby, and the Balas or rose-red ruby, magnesiates of alumina. [7] See B. iv. c. 1.

[8] "Carbo." This word may mean either a "burning coal" or "charcoal," hence the confusion that has arisen in identifying the mineral substance that is meant. [9] See Note 90, to Chapter 25.

[10] "Sandaresus" and "Sandasiros" are other readings. This stone has not been identified, but Ajasson is inclined to think that it may have been Aventurine quartz, and is the more inclined to this opinion, as that mineral is found in Persia, and *sandastra* or *tchandastra* is purely a Sanscrit word. The description, however, would hardly seem to apply to Aventurine.

are always to be seen in the body of the stone, and never upon the surface. There are certain religious associations, too, connected with this stone, in consequence of the affinity which it is supposed to bear with the stars; these scintillations being mostly, in number and arrangement, like the constellations of the Pleiades and Hyades; a circumstance which had led to the use of it by the Chaldæi in the ceremonials which they practise.

Here, too, the male stones are distinguished from the female, by their comparative depth of colour and the vigorousness of the tints which they impart to objects near them: indeed the stones of India, it is said, quite dim the sight by their brilliancy. The flame of the female sandastros is of a more softened nature, and may be pronounced to be lustrous rather than brilliant. Some prefer the stone of Arabia to that of India, and say that this last bears a considerable resemblance to a smoke-coloured chrysolithos. Isimenias asserts that sandastros, in consequence of its extreme softness, will not admit of being polished, a circumstance which makes it sell all[11] the dearer: other writers, again, call these stones "sandrisitæ." One point upon which all the authorities are agreed is, that the greater the number of stars upon the stone, the more costly it is in price.

The similarity of the name has sometimes caused this stone to be confounded with that known as "sandaresos," and which Nicander calls "sandaserion," and others "sandaseron." Some, again, call this last-mentioned stone "sandastros," and the former one "sandaresos." The stone[12] that is thus mentioned by Nicander, is a native of India as well as the other, and likewise takes its name from the locality where it is found. The colour of it is that of an apple, or of green oil, and no one sets any value on it.

### CHAP. 29.—LYCHNIS: FOUR VARIETIES OF IT.

To the same class of flame-coloured stones belongs that known as "lychnis;"[13] so called from its lustre being height-

[11] Littré suggests that the reading here probably might be "ob id *non* magno"—"sell *not* so dear." [12] It has not been identified.

[13] From λυχνὸς, a "lighted lamp" or "torch." Brotero is of opinion that this is the Cherry-coloured ruby, that the Ionian stone is the Purple ruby, and that the kermes-berry coloured stone is the Scarlet or Spinelle ruby. From the distinct reference made to its electric nature, Ajasson identifies it with Tourmaline, a Silicate of alumina. Beckmann is of the same opinion; Hist. Inv. Vol. I. p. 88. *Bohn's Edition.*

ened by the light of the lamp, under which circumstances its tints are particularly pleasing. It is found in the vicinity of Orthosia, throughout the whole of Caria, and in the neighbouring localities; but the most approved stones are those that come from India. Some writers have given the name of "deadened"[14] carbunculus to a lychnis of second-rate quality, and similar in colour to the flower known as the "flower of Jove."[15] I find other varieties also mentioned, one with a purple radiance, and another of a scarlet[16] tint. It is asserted, too, that these stones, when heated or rubbed between the fingers, will attract[17] chaff and filaments of paper.

### CHAP. 30.—CARCHEDONIA.

Carchedonia,[18] too, is said to have the same property, though far inferior in value to the stones already mentioned. It is found in the mountains among the Nasamones,[19] being produced, the natives think, by showers sent for the purpose from heaven. These stones are found by the light of the moon, more particularly when at full: in former days, Carthage was the entrepôt for them. Archelaüs speaks of a brittle variety being found in the vicinity of Thebes also, in Egypt, full of veins, and similar to dying embers in appearance. I find it stated, too, that in former times, drinking-vessels used to be made of this stone and of lychnis:[20] all these kinds of stone, however, offer the most obstinate resistance to the graver, and, if used for seals, are apt to bring away a part of the wax.

### CHAP. 31.—SARDA: FIVE VARIETIES OF IT.

Sarda,[21] on the other hand, is remarkably useful for this

[14] "Remissiorem."

[15] See B. xxi. cc. 33, 39, where the "Flos Jovis" is mentioned in juxtaposition with the flower called "lychnis," either the Umbel'd Campion rose, or the Common red rose Campion.

[16] "Coccum." "Kermes-berry coloured." These kinds probably were, Indicolite or Blue tourmaline, and Rubellite or Red tourmaline.

[17] As Beckmann remarks, he should have said that it first attracts, and then repels them; such being the case with Tourmaline.

[18] Not identical, most probably, with the Carchedonian or Carthaginian stone mentioned in Chapter 25, which was probably a garnet or a ruby. Ajasson has no doubt that it is identical with jasper quartz, including the varieties called Striped or Riband jasper, and Egyptian jasper.

[19] See B. v. c. 5, and B. vii. c. 2.

[20] Tourmaline, probably, in combination with other mineral substances.

[21] Carnelian, a variety of Chalcedony. It is originally grey, or greyish

purpose; a stone which shares its name, in part, with sardonyx. It is a common stone, and was first found at Sardes, but the most esteemed kind is that of the vicinity of Babylon. When certain quarries are being worked, these stones are found, adhering, like a kind of heart, to the interior of the rock. This mineral, however, is said to be now extinct in Persia; though it is to be found in numerous other localities, Paros and Assos, for example.

In India[22] there are three varieties of this stone; the red sarda, the one known as "pionia," from its thickness, and a third kind, beneath which they place a ground of silver tinsel. The Indian stones are transparent, those of Arabia being more opaque. There are some found also in the vicinity of Leucas in Epirus, and in Egypt, which have a ground placed beneath them of leaf gold. In the case of this stone, too, the male stone shines with a more attractive brilliancy than the female, which is of a thicker substance, and more opaque. Among the ancients there was no precious stone in more common use than this; at all events, it is this stone that is made so much parade of in the comedies of Menander and Philemon. No one, too, among the transparent stones is tarnished more speedily by exposure to moisture than this; though of all liquids, it is oil that acts the most readily upon it. Those stones which are like honey in colour, are generally disapproved of, and still more so, when they have the complexion of earthenware.[23]

CHAP. 32. (8.)—TOPAZOS: TWO VARIETIES OF IT.

Topazos[24] is a stone that is still held in very high estimation for its green tints: indeed, when it was first discovered, it was preferred to every other kind of precious stone. It so happened that some Troglodytic pirates, suffering from tempest and hunger, having landed upon an island off the coast of Arabia known as Cytis,[25] when digging there for roots and grass, discovered this precious stone: such, at least, is the opinion

red, which afterwards turns to a rich, deep, red, on exposure to the sun's rays, and subsequently to artificial heat.

[22] Which supplies the best carnelians at the present day.

[23] From their mixture, Ajasson says, with argillaceous earth.

[24] Under this name Pliny evidently speaks of the stone known to us as Chrysolite, and possibly of green agate as well. Our Topaz cannot be easily recognized in this Chapter, at all events.

[25] See B. vi. c. 34.

expressed by Archelaüs. Juba says that there is an island in the Red Sea called "Topazos,"[26] at a distance of three hundred stadia from the main land; that it is surrounded by fogs, and is often sought by navigators in consequence; and that, owing to this, it received its present name,[27] the word "topazin" meaning "to seek," in the language of the Troglodytæ. He states also, that Philon, the king's præfect, was the first to bring these stones from this island; that, on his presenting them to Queen Berenice, the mother of the second Ptolemæus, she was wonderfully pleased with them; and that, at a later period, a statue, four cubits in height, was made of this stone,[28] in honour of Arsinoë, the wife of Ptolemæus Philadelphus, it being consecrated in the temple known as the "Golden Temple."

The most recent writers say that this stone is found also in the vicinity of Alabastrum, a city of Thebais, and they distinguish two varieties of it, the prasoïdes[29] and the chrysopteron;[30] which last is similar to chrysoprasus,[31] all the shades of it tending, more or less, to resemble the colouring principle of the leek. Topazos is the largest of all the precious stones, and is the only one among those of high value that yields to the action of the file, the rest being polished by the aid of stone of Naxos.[32] It admits, too, of being worn by use.

## CHAP. 33.—CALLAINA.

With this stone we must also couple another, which resembles it more closely in appearance than in value, the stone known as "callaina,"[33] and of a pale green colour. It is found in the countries[34] that lie at the back of India, among the Phycari,

[26] See B. vi. c. 34.

[27] Τοπάζω, in Greek, signifies "to conjecture."

[28] It was agate, most probably.

[29] "Leek-green." Ajasson and Desfontaines think that this must have been either Oriental Chrysolite or Oriental Peridote.

[30] Some would identify this with Oriental topaz or yellow corundum, a variety of the Sapphire; while others would see in it the genuine Topaz; and others, again, think it synonymous with the Chrysoprase. The name "chrysopteron" means "golden-wing."

[31] "Leek-green and gold." An apple or leek-green Chalcedony, coloured by nickel. See Chapters 20, 34, and 73, of this Book.

[32] See B. xxxvi. c. 10.

[33] Dana thinks this identical with the Turquois. Ajasson and Desfontaines identify it with Oriental Peridote.

[34] Turquois is found in large quantities in a mountainous district of Persia,

namely, who inhabit Mount Caucasus, the Sacæ, and the Dahæ. It is remarkable for its size, but is covered with holes and full of extraneous matter; that, however, which is found in Carmania is of a finer quality, and far superior. In both cases, however, it is only amid frozen and inaccessible rocks that it is found, protruding from the surface, like an eye in appearance, and slightly adhering to the rock; not as though it formed an integral part of it, but with all the appearance of having been attached to it. People so habituated as they are to riding on horseback, cannot find the energy and dexterity requisite for climbing the rocks to obtain the stones, while, at the same time, they are quite terrified at the danger of doing so. Hence it is, that they attack the stones with slings from a distance, and so bring them down, moss and all. It is with this stone that the people pay their tribute, and this the rich look upon as their most graceful ornament for the neck.[35] This constitutes the whole of their wealth, with some, and it is their chief glory to recount how many of these stones they have brought down from the mountain heights since the days of their childhood. Their success, however, is extremely variable;[36] for while some, at the very first throw, have brought down remarkably fine specimens, many have arrived at old age without obtaining any.

Such is the method of procuring these stones; their form being given them by cutting, a thing that is easily effected. The best of them have just the colour of smaragdus, a thing that proves that the most pleasing property in them is one that belongs of right to another stone. Their beauty is heightened by setting them in gold, and there is no stone to which the contrast of the gold is more becoming. The finest of them lose their colour by coming in contact with oil, unguents, or undiluted wine even; whereas those of a poorer quality preserve their colour better. There is no stone, too, that is more easily counterfeited in glass. Some writers say, that this stone is to be found in Arabia also, in the nest of the bird known as the "melancoryphus."[37]

not far from Nichabour; where it occurs in veins which traverse the mountains in all directions.

[35] Isidorus says, B. xvi. c. 17, that they wore it in the ears. The Shah of Persia, it is said, retains for his own use all the larger and more finely tinted specimens of turquois that are found in his dominions.

[36] This story is now regarded as fabulous.

[37] See B. x. cc. 44, 79.

CHAP. 34.—PRASIUS; THREE VARIETIES OF IT.

There are numerous other kinds also of green stones. To the more common class belongs prasius;[38] one variety of which is disfigured with spots[39] like blood, while another kind is marked with three streaks of white. To all these stones chrysoprasus[40] is preferred, which is also similar to the colouring matter of the leek, but varies in tint between topazos and gold. This stone is found of so large a size as to admit of drinking-boats[41] even being made of it, and is cut into cylinders very frequently.

CHAP. 35.—NILION.

India, which produces these stones, produces nilion[42] also, a stone that differs from the last in its dull, diminished lustre, which, when steadily looked upon, soon fades from the sight. Sudines says that it is to be found also in the Siberus, a river of Attica. In appearance it resembles a smoke-coloured topazos, or, in some cases, a topazos with a tint like honey. According to Juba, Æthiopia produces it, upon the shores of the river known to us as the Nilus; to which circumstance, he says, it owes its name.

CHAP. 36.—MOLOCHITIS.

Molochitis[43] is not transparent, being of a deeper green, and more opaque than smaragdus; its name is derived from the mallow,[44] which it resembles in colour. It is highly esteemed for making seals, and it is endowed by Nature with medicinal properties which render it a preservative for infants against certain dangers which menace them. This stone is a native of Arabia.[45]

[38] The stone now known as "Prase" is a vitreous, leek-green, variety of massive quartz.

[39] This may possibly have been Plasma, a faintly translucent Chalcedony, approaching jasper, having a greenish colour, sprinkled with yellow and whitish dots, and a glistening lustre. Or, perhaps, Bloodstone or Heliotrope, a kind of jasper.

[40] See the preceding Chapter, and Note 31.

[41] "Cymbia." Drinking vessels shaped like a boat.

[42] Or "Nile-stone." Egyptian jasper, or Egyptian pebble, a kind of quartz.

[43] Our Malachite, a green carbonate of copper. See B. xxxiii. c. 26.

[44] Called μολόχη or μαλάχη in Greek.

[45] Also of Siberia, Shetland, the United States, and numerous other localities.

CHAP. 37.—IASPIS; FOURTEEN VARIETIES OF IT. DEFECTS FOUND IN IASPIS.

Iaspis,[46] too, is green, and often transparent; a stone which, if surpassed by many others, still retains the renown which it acquired in former times. Many countries produce this stone: that of India is like smaragdus in colour; that of Cyprus is hard, and of a full sea-green; and that of Persia is sky-blue, whence its name, "aërizusa."[47] Similar to this last is the Caspian iaspis. On the banks of the river Thermodon the iaspis is of an azure colour; in Phrygia, it is purple; and in Cappadocia of an azure purple, sombre, and not refulgent. Amisos[48] sends us an iaspis like that of India in colour, and Chalcedon,[49] a stone of a turbid hue.

But it is of less consequence to distinguish the several localities that furnish it, than it is to remark upon the degrees of excellence which they present. The best kind is that which has a shade of purple, the next best being the rose-coloured, and the next the stone with the green colour of the smaragdus; to each of which the Greeks have given names[50] according to their respective tints. A fourth kind, which is called by them "boria,"[51] resembles in colour the sky of a morning in autumn; this, too, will be the same that is known as "aërizusa."[52] There is an iaspis also which resembles sarda[53] in appearance, and another with a violet tint. Not less numerous, too, are the other kinds that are left undescribed; but they are all blue to a fault,[54] or else resemble crystal in appearance, or the tints of the myxa[55] plum. There is the terebenthine[56]-coloured iaspis also; improperly so called, in my opinion, as it has all the appearance of being a composition of numerous gems of this description.

The best of these stones are set in an open bezel, the gold of

[46] Meadow-green jasper

[47] Salmasius erroneously takes this to be the Turquoise. It is our sky-blue jasper, no doubt. See Beckmann, Hist. Inv Vol. I. p. 471, *Bohn's Edition*.

[48] See B. vi. c. 2.

[49] The Bamberg MS. gives "Calchedon" here.

[50] Namely, *πορφυρίζουσα*, *ροδίζουσα*, and *σμαραγδίζουσα*.

[51] "Northern," apparently.

[52] "Sky-blue," mentioned above.

[53] See Chapter 31. Red jasper, or perhaps Red porphyry.

[54] "Aut" appears to be a preferable reading to the "ut" of the Bamberg MS.

[55] See B. xv. cc. 12, 13.

[56] "Terebinthizusa." Yellow jasper, Ajasson says.

which only embraces the margins of the stone, leaving the upper and lower surfaces uncovered. One great defect in them is a subdued lustre, and a want of refulgence when viewed from a distance. Grains also like salt appear within the stone, and all the other defects which are common[57] to precious stones in general. Sometimes they are imitated in glass; a fraud, however, which may be easily detected, from the material throwing out its refulgence, instead of concentrating it within itself. To this class also belongs the stone called "sphragis,"[58] which is only reckoned as belonging to the domain of precious stones, from the circumstance that it is the best of all for making signets.[59]

(9.) Throughout all the East, it is the custom, it is said, to wear iaspis by way of amulet. The variety of this stone which resembles smaragdus in colour is often found with a white line running transversely through the middle; in which case it is known as "monogrammos:"[60] when it is streaked with several lines, it is called "polygrammos."[61] Here, too, I may take the opportunity of exposing the falsehoods[62] of the magicians, who pretend that this stone is beneficial for persons when speaking in public. There is a stone also that is formed of iaspis and onyx combined, and is known as "iasponyx."[63] Sometimes this stone has a clouded appearance; sometimes it has spots upon the surface like snow;[64] and sometimes it is stellated with red spots.[65] One kind resembles salt of Megara[66] in appearance, and another is known as capnias,[67] and looks as if it had been smoked. We have seen in our day an iaspis[68]

[57] See Chapter 18 of this Book.

[58] "Seal-stone." A kind of carnelian, probably.

[59] "Publico gemmarum dominio iis tantum dato, quoniam optime signent." The above is the sense given to the passage by Holland, Ajasson, and Littré; but another translation may also be suggested— "A stone to which alone, by general consent, is awarded the custody of precious stones, from the fact that it makes the best impression as a seal." In reference to the custom of putting a seal on the dactyliothecæ, or jewel-caskets. See page 80 of this Book.

[60] "Single-lined." [61] "Many-lined."

[62] Albertus Magnus, De Mineral. B. ii., has several other stories respecting it of a similar nature. [63] Jasper onyx.

[64] Identified by Ajasson with snow-flake chalcedony.

[65] Spotted jasper onyx. [66] See B. xxxi. c. 41.

[67] Smoked jasper onyx.

[68] It is still used for making vases, boxes, knife-handles, and other articles, and is much used in the manufacture of Florentine mosaics. We

fifteen inches in length, of which a figure of Nero was made, armed with a cuirass.

CHAP. 38.—CYANOS; THE SEVERAL VARIETIES OF IT.

We must also give a separate account of cyanos,[69] a name which, until very recently, was given to a species of iaspis, on account of its cærulean colour. The best kind is that of Scythia,[70] the next best being the produce of Cyprus, and, last of all, that of Egypt. An artificial[71] kind is much in use, that is prepared by dyeing other substances; and this invention is looked upon as one of the great glories of the kings of Egypt, the name of the king who first discovered it being still preserved in their annals. This stone, too, is divided into male and female, and sometimes it has the appearance of being powdered with a golden dust, in much the same way as sapphiros.

CHAP. 39.—SAPPHIROS.

For sapphiros,[72] too, is refulgent with spots[73] like gold. It is also of an azure colour, though sometimes, but rarely, it is purple; the best kind being that which comes from Media. In no case, however, is this stone diaphanous; in addition to which, it is not suited for engraving when intersected with hard particles of a crystalline[74] nature. Those among them that have the colour of cyanos are generally thought to be the male stones.

CHAP. 40.—AMETHYSTOS; FOUR VARIETIES OF IT. SOCONDION. SAPENOS. PHARANITIS. APHRODITES BLEPHARON, ANTEROS, OR PÆDEROS.

We will now commence with another class of precious stones,

may also remark, that the "iaspis" of Pliny probably included some stones not of the jasper kind.

[69] "Azure stone;" generally supposed to have been a species of Lapis lazuli or azure. Beckmann is of opinion that it was a mineral or mountain blue, tinged with copper.

[70] It is found in China, Persia, Siberia, and Bucharia.

[71] Ultramarine is prepared from Lapis lazuli, and an artificial kind is extensively in use, which equals the native in permanency and brilliancy of colour, and is very extensively employed in the arts. Theophrastus, De Lapid. sec. 55, speaks of this artificial ultramarine.

[72] This must not be taken for the Sapphire of the present day, but was most probably Lapis lazuli, and identical, perhaps, with Cyanos. Beckmann has devoted considerable attention to this subject; Hist. Inv. Vol. I. pp. 468—473. *Bohn's Edition.*

[73] Particles of iron pyrites, probably, which are frequently to be seen in Lapis lazuli.

[74] Quartz, probably, according to some authorities.

those of a purple colour, or whose tints are derived from purple. To the first rank belongs the amethystos[75] of India; a stone which is also found in the part of Arabia that adjoins Syria and is known as Petra, as also in Lesser Armenia, Egypt, and Galatia; the very worst of all, and the least valued, being those of Thasos and Cyprus. The name which these stones bear, originates, it is said, in the peculiar tint of their brilliancy, which, after closely approaching the colour of wine, passes off into a violet without being fully pronounced; or else, according to some authorities, in the fact that in their purple there is something that falls short of a fiery colour, the tints fading off and inclining to the colour of wine.

All these stones are transparent and of an agreeable violet colour, and are easy[76] to engrave. Those of India have in perfection the very richest shades of purple, and it is to attain this colour that the dyers[77] in purple direct all their endeavours; it presenting a fine mellowed appearance to the eye, and not dazzling the sight, as in the case with the colours of the carbunculus. Another variety approaches more nearly the hyacinth in colour: the people of India call this tint "socon," and the stone itself "socondion." A third stone of this class is of a more diluted colour, and is known as "sapenos," being identical with "pharanitis," so called from a country[78] on the frontiers of Arabia that produces it. Of a fourth kind, the colour is like that of wine; and in a fifth it borders very closely upon that of crystal, the purple gradually passing off into white. This last kind is but little valued; for a fine amethyst should always have, when viewed sideways[79] and held up to the light, a certain purple refulgence, like that of carbunculus, slightly inclining to a tint of rose.

Some prefer giving these stones the name of "pæderos"[80] or

[75] So called, according to some authorities, from ἀ, "not," μεθύω, "to intoxicate," on account of its being a supposed preservative against inebriety. Ajasson is of opinion that Pliny does not here speaks of the Quartz Amethyst of modern mineralogy, but only the Oriental Amethyst, violet Sapphire, or violet Corundum. It is not improbable, however, that he includes them all, as well as violet Fluor spar, and some other purple stones; inclusive, possibly, of the Garnet.

[76] He is probably speaking *here* of violet Fluor spar; Oriental amethyst, or violet sapphire, it is next to impossible to engrave. [77] See B. ix. c. 62.

[78] The city of Pharan, mentioned by St. Jerome and Eusebius.

[79] "In suspectu." See B. xxi. c. 22.

[80] "Lovely youth." The Opal has been thus called in Chapter 22.

of "anteros,"[81] while to many they are known as "Venus'[82] eyelid," a name which would seem to be particularly appropriate to the colour and general appearance of the gem. The falsehoods of the magicians would persuade us that these stones are preventive of inebriety, and that it is from this that they have derived[83] their name. They tell us also, that if we inscribe the names of the sun and moon upon this stone, and then wear it suspended from the neck, with some hair of the cynocephalus[84] and feathers of the swallow, it will act as a preservative against all noxious spells. It is said too, that worn in any manner, this stone will ensure access to the presence of kings; and that it will avert hail and the attacks of locusts, if a certain prayer is also repeated which they mention. They make similar promises, too, in reference to the smaragdus, if graven with the figure of an eagle or of a scarabæus: statements which, in my opinion, they cannot have committed to writing without a feeling of contempt and derision for the rest of mankind.

### CHAP. 41.—HYACINTHOS.

Very different from this stone is hyacinthos,[85] though partaking of a colour that closely borders upon it. The great difference between them is, that the brilliant violet which is so refulgent in the amethystos, is diluted in the other stone. Though pleasing at first sight, its beauty fades before the eye is satiated; indeed, so far is it from satisfying the sight, that it almost wholly fails to attract the eye, its lustre disappearing more rapidly than the tints of the flower[86] known by the same name.

### CHAP. 42.—CHRYSOLITHOS: SEVEN VARIETIES OF IT.

Æthiopia, which produces hyacinthos, produces chrysolithos[87]

[81] "Avenger of slighted love."

[82] "Veneris gena;" called in Greek "Aphrodites blepharon."

[83] Which is most probable; however untrue the story itself may be. See Note 75 above.

[84] A kind of Baboon. See B. vi. c. 35, B. vii. c. 2, and B. viii. c. 80.

[85] It is considered very doubtful whether the modern Hyacinth or Zircon is one of the number of stones that were called "Hyacinthus" by the ancients. Jameson appears to have thought that they gave this name to the oriental amethyst or violet sapphire.

[86] See B. xxi. c. 38.

[87] Generally supposed to be the Oriental topaz, yellow Sapphire or yellow Corundum. We have already seen, in Chapter 32, that the "Topazos" of the ancients was in all probability the modern Chrysolite.

also, a transparent stone with a refulgence like that of gold. The stones of India are the most highly esteemed, as also those found among the Tibareni,[88] provided these last are not of a mottled hue. The worst in quality are those of Arabia, the colour of them being turbid and mottled, and their brilliancy interrupted by cloudy spots: even too, when they happen to be limpid, they have all the appearance of being full, as it were, of a peculiar dust. The best stones are those which, when placed by the side of gold, impart to it a sort of whitish hue, and so give it the appearance of silver. When this is the case, they are set in a bezel that is open on either side; but when the stone is of inferior quality, a ground of aurichalcum[89] is placed beneath.

### CHAP. 43.—CHRYSELECTRUM.

Though it has now altogether gone out of use for jewellery, there is a precious stone known as "chryselectrum,"[90] the colour of which inclines to that of amber;[91] but only when viewed by a morning[92] light. The stones of Pontus are known by their lightness. Some of them are hard and reddish, while others, again, are soft and of a soiled appearance. According to Bocchus, these stones are found in Spain as well; in a spot where, according to him, fossil crystal has been discovered, in sinking to the water-level for wells.[93] He tells us also that he once saw a chrysolithos twelve[94] pounds in weight.

### CHAP. 44.—LEUCOCHRYSOS: FOUR VARIETIES OF IT.

There is also a stone known as "leucochrysos,"[95] with a white vein running across it. To this class, too, belongs capnias;[96] a stone also which resembles glass in appearance; and another which reflects a tint like that of saffron. These stones are imitated in glass, to such a degree of perfection, that it is impossible to distinguish them by the eye. The touch, however, detects the difference, the imitation being not so cold as the real stone.

88 In Pontus: see B. vi. c. 4.
89 See B. xxxiv. c. 2.
90 Supposed to be yellow-white Hyacinth. See Chapter 12 of this Book.
91 "Electrum."
92 See Chapter 76 of this Book.
93 See Chapter 9 of this Book.
94 Yellow quartz crystal probably, or False topaz.
95 "White gold stone." It has not been identified.
96 "Smoke-stone." A jasper has been so called in Chapter 37.

CHAP. 45.—MELICHRYSOS. XUTHON.

To this class also belongs melichrysos,[97] a stone which has all the appearance of pure honey, seen through transparent gold. India produces these stones, and, although hard, they are very brittle, but not unpleasing to the sight. The same country, too, produces xuthon,[98] a stone much used by the lower classes there.

CHAP. 46.—PÆDEROS, SANGENON, OR TENITES.

At the very head of the white stones is pæderos;[99] though it may still be questionable to which of the colours it in reality belongs. As to the name, it has been so much bandied about among other precious stones of conspicuous beauty, that it has quite assumed the privilege of being a synonymous term[1] for all that is charming to the eye. Still, however, there is one[2] stone in particular which fully merits all the commendation that might be expected for a stone with so prepossessing a name: for in itself it reunites the transparency of crystal, the peculiar green of the sky, the deep tints of purple, and a sort of bright reflex, like that of a golden-coloured wine; a reflex, indeed, that is always the last to meet the eye, but is always crowned with the lustrous hues of purple. The stone, in fact, has all the appearance of having been bathed in each of these tints, individually, and yet in the whole of them at once. There is no precious stone either that has a clearer water than this, or that presents a more pleasing sweetness to the eye.

Pæderos of the finest quality comes from India, where it is known as "sangenon;" the next best being that of Egypt, called "tenites." That of third-rate quality is found in Arabia, but it is rough upon the surface. Next, we have the stone of Pontus, the radiance of which is softer than in that of Thasos, which, in its turn, is of a more mellowed colour than the stones of Galatia, Thrace, and Cyprus. The defects com-

97 "Honey gold stone." Some are of opinion that this was the Honey-coloured Hyacinth. Others, again, identify it with the yellow, honey-coloured Topaz; an opinion with which Ajasson coincides.

98 "Xanthon" is another reading. See Chapter 60 of this Book.

99 "Lovely youth." See Chapter 22, where it has been already mentioned. He here reverts to the Opals.

1 See Chapter 40, for example, where it is given to a variety of the Amethyst. 2 The Opal, which he is about to describe.

monly found in these stones are, a want of brilliancy, a confusion with colours which do not properly belong to them, and the other imperfections which are found in stones in general.[3]

### CHAP. 47.—ASTERIA.

Next among the white stones is "asteria,"[4] a gem which holds its high rank on account of a certain peculiarity in its nature, it having a light enclosed within, in the pupil of an eye as it were. This light, which has all the appearance of moving within the stone, it transmits according to the angle of inclination at which it is held; now in one direction, and now in another. When held facing the sun, it emits white rays like those of a star, and to this, in fact, it owes its name.[5] The stones of India are very difficult to engrave, those of Carmania being preferred.

### CHAP. 48.—ASTRION.

Of a similar white radiance is the stone that is known as "astrion,"[6] closely resembling crystal in its nature, and found in India and upon the coasts of Pallene.[7] In the centre of it there shines internally a brilliant star, with a refulgence like that of the moon when full. Some will have it that this stone receives its name from the fact that, when held opposite to the stars, it absorbs the light they emit and then returns it. The finest stones, they say, are those of Carmania, there being none more entirely free from all defects. They add, also, that a stone of inferior quality is known as "ceraunia,"[8] and that, in the worst of all, the light is very similar to that given by a lamp.

### CHAP. 49.—ASTRIOTES.

Astriotes,[9] too, is a stone that is highly esteemed, and Zoroaster, they say, has sung its wondrous praises as an adjunct of the magic art.

[3] See Chapter 18 of this Book.

[4] The vitreous Asteriated crystals of Sapphire are still called by this name. Ajasson, however, and Desfontaines, identify this gem with Girasol opal or fire opal. See Note 60.

[5] From ἀστερ, a star.

[6] "Star-stone." Ajasson identifies this stone with the Asteriated Sapphire or Corundum, mentioned in Note 4 above.

[7] See B. iv. cc. 10, 17.

[8] "Lightning darting."

[9] "Star-like." Ajasson thinks, that it is identical with the stone next mentioned.

CHAP. 50.—ASTROBOLOS.

Sudines says, that astrobolos[10] resembles the eye of a fish in appearance, and that it has a radiant white refulgence when viewed in the sun.

CHAP. 51.—CERAUNIA; FOUR VARIETIES OF IT.

Among the white stones also, there is one known as "ceraunia,"[11] which absorbs the brilliancy of the stars. It is of a crystalline formation, of a lustrous azure colour, and is a native of Carmania. Zenothemis admits that it is white, but asserts that it has the figure of a blazing star within. Some of them, he says, are dull, in which case it is the custom to steep them for some days in a mixture of nitre and vinegar; at the end of which period the star makes its appearance, but gradually dies away by the end of as many months.

Sotacus mentions also two other varieties of ceraunia, one black and the other red; and he says that they resemble axes in shape. Those which are black and round,[12] he says, are looked upon as sacred, and by their assistance cities and fleets are attacked and taken: the name given to them is "bætyli," those of an elongated form being known as "ceraunіæ."[13] They make out also that there is another kind, rarely to be met with, and much in request for the practices of magic, it never being found in any place but one that has been struck by lightning.[14]

CHAP. 52.—IRIS; TWO VARIETIES OF IT.

The next name mentioned by these authors is that of the stone called "iris;"[15] which is found, in a fossil state, in a certain island of the Red Sea, forty miles distant from the city

[10] "Planet-stricken." It is not improbable that this was Cat's-eye, a translucent Chalcedony, presenting a peculiar opalescence, or internal reflections, when cut *en cabochon*. The colour is either bright-greenish grey, or else yellow, red, or brownish.

[11] See Note 8 above. Parisot thinks that these must have been Aërolites or Meteorites.

[12] Brotero thinks that these were petrified shells, to which the magicians imputed marvellous properties.

[13] Brotero is of opinion that those were Belemnites, more commonly known as "thunderstones." The reading "bætyli" is doubtful; but Parisot says, on what authority does not appear, that "Betylus" meant "Great father," and that this name, as well as "Abaddir" of similar signification, was given by magicians to aërolites or meteorites used in their enchantments.

[14] A meteoric stone or aërolite, evidently.

[15] "Rainbow." Opinion seems divided as to whether this is Hyalin

of Berenice. It is partly composed of crystal, and hence it is that some have called it "root of crystal." It takes its name "iris" from the properties which it possesses; for, when struck by the rays of the sun in a covered spot, it projects upon the nearest walls the form and diversified colours of the rainbow; continually changing its tints, and exciting admiration by the great variety of colours which it presents. That it is hexahedral in form, like crystal, is generally agreed; but some say that it is rough on the sides and of unequal angles; and that, when exposed to a full sun, it disperses the rays that are thrown upon it, while at the same time, by throwing out a certain brightness[16] before it, it illumines all objects that may happen to be adjacent. The stone, however, as already stated, only presents these colours when under cover; not as though they were in the body of the stone itself, but, to all appearance, as if they were the result of the reflected light upon the surface of the wall. The best kind is the one that produces the largest arcs, with the closest resemblance to the rainbow.

"Iritis" is the name of another stone, similar to the last in all other respects, but remarkable for its extreme hardness. Horus says, in his writings, that this stone, calcined and triturated, is a remedy for the bite of the ichneumon, and that it is a native of Persia.

### CHAP. 53.—LEROS.

The stone called "leros"[17] is similar in appearance, but does not produce the same effects. It is a crystal, with streaks of white and black running across it.

### CHAP. 54.—ACHATES; THE SEVERAL VARIETIES OF IT. ACOPOS; THE REMEDIES DERIVED FROM IT. ALABASTRITIS; THE REMEDIES DERIVED FROM IT. ALECTORIA. ANDRODAMAS. ARGYRODAMAS. ANTIPATHES. ARABICA. AROMATITIS. ASBESTOS. ASPISATIS. ATIZÖE. AUGETIS. AMPHIDANES OR CHRYSOCOLLA. APHRODISIACA. APSYCTOS. ÆGYPTILLA.

Having now described the principal precious stones, classified

quartz iridized internally, or prismatic crystals of Limpid quartz, which decompose the rays of the sun.

[16] The reading and meaning of this passage are very doubtful.

[17] The reading is doubtful, "zeros" and "erros" being given by some MSS. Ajasson hazards a conjecture that it may have been a variety of quartz, formed of a concretion of agates united by a cement of a similar nature.

according to their respective colours, I shall proceed to mention the rest of them in their alphabetical order.

(10.) Achates[18] was a stone formerly in high esteem, but now held in none. It was first found in Sicily, near a river of that name; but has since been discovered in numerous other localities. In size it exceeds any other stones of this class, and the varieties of it are numerous, the name varying accordingly. Thus, for example, we have iaspachates,[19] cerachates,[20] smaragdachates,[21] hæmachates,[22] leucachates,[23] dendrachates,[24] marked with small shrubs, as it were; autachates,[25] which when burnt has a smell like that of myrrh; and coralloachates,[26] spotted all over, like sapphiros, with drops of gold, and commonly found in Crete, where it is also known as "sacred" achates. This last, it is thought, is good for wounds inflicted by spiders and scorpions; a property which I could really believe to belong to the stones of Sicily, for, the moment they breathe the air of that province, scorpions lose their venom.

The stones, too, that are found in India are possessed of similar properties, and of other great and marvellous properties as well; for they present the appearance in them of rivers,[27] woods,[28] beasts of burden, and forms even, like ivy[29] and the trappings of horses. Medical men, too, make grinding-hones[30] of these stones, and indeed the very sight of them is beneficial for the eyes: held in the mouth, they allay thirst. Those found in Phrygia have no green in them, and those of Thebes in Egypt are destitute of red and white veins. These last are good as a counterpoison to the venom of the scorpion, and the stones of Cyprus are held in similar repute. Some persons set the highest value upon those stones which present a transparency like that of glass. They are found also in Trachinia,

[18] A general name for Agate, and possibly some other stones not now included under the name. [19] "Jasper agate."

[20] "Wax agate." The modern Orange agate, probably.

[21] "Smaragdus agate." Emerald-coloured agate.

[22] "Blood agate." Agate sprinkled with spots of red jasper.

[23] "White agate."

[24] "Tree agate." Moss agate or Mocha stone, coloured by oxide of iron.

[25] Probably the reading should be "Stactachates," "Myrrh agate."

[26] "Coralline agate." See Chapter 56. [27] Undulated agate.

[28] Moss agate, probably. See Note 24 above.

[29] Sillig is of opinion that the reading here is corrupt.

[30] "Coticulas." Stones for grinding drugs.

in the vicinity of Mount Œta, upon Mount Parnassus, in the Isle of Lesbos, in Messene, where they resemble the flowers that grow in the hedges, and at Rhodes.

The magicians make other distinctions in reference to these stones: those, they tell us, which have spots upon them like the spots on the lion's skin, are efficacious as a protection against scorpions; and in Persia, they say, these stones are used, by way of fumigation, for arresting tempests and hurricanes, and for stopping the course of rivers, the proof of their efficacy being their turning the water cold, if thrown into a boiling cauldron. To be duly efficacious, they must be attached to the body with hairs from a lion's mane. The hair, however, of the hyæna is held in abomination for this purpose, as being a promoter of discord in families. The stone that is of an uniform colour renders athletes invincible, they say: the way of testing it is to throw it, along with colouring matter, into a pot full of oil; after being kept for a couple of hours gently on the boil, if genuine, it will impart an uniform colour of vermilion to the mixture.

Acopos[31] is a stone like nitre[32] in appearance, porous, and starred with drops of gold: gently boiled with oil and applied as an unguent, it relieves lassitude, if we choose to believe it. Alabastritis[33] is a stone which comes from Alabastron in Egypt and Damascus in Syria: it is of a white colour, spotted with various other tints. Calcined with fossil salt and pulverized, it is a cure for affections of the mouth and teeth, it is said. Alectoria[34] is the name given to a stone that is found in the crop of poultry, like crystal in appearance, and about as large as a bean in size: Milo[35] of Crotona, some will have it, was thought to be in the habit of carrying this stone about him, a thing that rendered him invincible in his athletic contests. Androdamas[36] has the shining colour of silver, like adamas;[37] it is always quadrangular, like small cubes in shape. The magicians are of opinion that it was thus named from the fact that it subdues anger and violence in man. Whether argyrodamas[38] is the same stone or not, authors do not inform

[31] "Refreshing" stone. Hardly any of these stones appear to be identified. [32] As to the "nitrum" of Pliny, see B. xxxi. c. 46.

[33] Probably the same as the Alabastrites of B. xxxv. c. 12.

[34] From the Greek, *ἀλέκτωρ*, a "cock." [35] See B. vii. c. 19.

[36] "Man-subduing." Identified by some with Marcasite, or White iron pyrites. [37] See Chapter 15 of this Book. [38] "Silver-subduing."

us. Antipathes[39] is a black stone, and not transparent: the mode of testing it, is by boiling it in milk, to which, if genuine, it imparts a colour like that of myrrh. A person might probably expect to find some extraordinary virtues in this stone, seeing that, among so many other substances possessed of antipathetic properties, it is the only one that bears this name. The magicians will have it that it possesses the power of counteracting fascinations.

Arabica[40] is a stone which closely resembles ivory in appearance, and, indeed, might easily be taken for it, were it not for its superior hardness: persons who have this stone about them, it is thought, will experience a cure of diseases of the sinews. Aromatitis,[41] too, is a stone that is found in Arabia, as also in the vicinity of Phiræ in Egypt: it is always full of small stones, and like myrrh in colour and smell, a thing that makes it much in request with ladies of rank.[42] Asbestos[43] is found in the mountains of Arcadia, and is of an iron colour. Democritus informs us that aspisatis[44] is a native of Arabia, that it is of a fiery colour, and that patients should wear it attached to the body with camels' dung; he says, too, that it is found in the nests of certain birds[45] in Arabia. The same writer also mentions another stone of this name, that is found at Leucopetra in the same country, of a silver colour, radiant, and an excellent preservative against delirium. In India, he says, and on Mount Acidane in Persia, there is a stone found that is known as "atizoë,"[46] of a silver lustre, three fingers in length, like a lentil in shape, possessed of a pleasant smell, and considered necessary by the Magi at the consecration of a king. Augetis[47] is thought by many to be identical with callaina.[48] Amphidanes,[49] which is also known as "chrysocolla,"[50] is a stone found in that part of India where the ants[51] throw up gold, and in it there are certain

[39] "Counteracting-stone."

[40] Probably the stone mentioned in B. xxxvi. c. 41.

[41] "Aromatic stone." Cæsalpinus is of opinion that this is grey or clouded amber. [42] "Reginis."

[43] See B. xix. c. 4, and B. xxxvi. c. 31. [44] The reading is doubtful.

[45] "Called "melancoryphi" in Chapter 33.

[46] Ajasson thinks that the reading should be "Aeizoe," from the Greek ἀειζώη, "long lived." [47] "Shining stone," apparently.

[48] See Chapter 33 of this Book. [49] The reading is doubtful.

[50] See B. xxxiii. c. 2: where a fossil Chrysocolla is also mentioned.

[51] See B. xi. c. 36, and B. xxxiii. c. 21.

square pieces, like gold in appearance. The nature of this stone, it is asserted, is similar to that of the magnet; in addition to which, it is said to have the property of increasing gold.

Aphrodisiaca[52] is a stone of a reddish white colour. Apsyctos,[53] when heated by fire, retains the warmth so long as seven days; it is black and ponderous, and is streaked with red veins. It is good too, it is thought, as a preservative against cold. According to Iacchus, Ægyptilla[54] is a kind of white and black sarda, intersected with veins; but the stone commonly known by that name is black at the lower part, and azure on the surface. It takes its name from the country that produces it.

CHAP. 55.—BALANITES. BATRACHITIS. BAPTES. BELI OCULUS. BELUS. BAROPTENUS OR BARIPPE. BOTRYITIS. BOSTRYCHITIS. BUCARDIA. BRONTEA. BOLOS.

Of balanites[55] there are two kinds, the one of a greenish hue, and the other like Corinthian bronze in appearance; the former comes from Coptos, and the latter from Troglodytica. They are both of them intersected by a flame-like vein, which runs through the middle. Coptos, too, sends us batrachitis;[56] one kind of which is like a frog in colour, another has the tint of ebony, and a third is blackish inclining to red. Baptes[57] is a soft stone, and of a most excellent smell. Beli oculus[58] is a stone of a whitish hue, surrounding a black pupil in the middle, which shines amid a lustre like that of gold. This stone, in consequence of its singular beauty, has been consecrated to the deity[59] held in the highest veneration by the people of Assyria. According to Democritus, there is also a stone called belus, and found at Arbela; it is about the size of a walnut, and looks[60] like glass. Baroptenus or barippe is black, and covered

[52] "Gem of Aphrodite" or "Venus." Thought by Dalechamps and Hardouin to have been a kind of agate.

[53] "Which never grows cold." [54] A kind of Onyx, Dalechamps thinks.

[55] "Acorn stone." Like an olive in appearance, and now known as "Jew stone," probably, a fossil.

[56] "Frog-stone." Varieties of quartz, probably.

[57] "Dipped stone." Dalechamps says that it was amber stained with alkanet, but on what authority does not appear.

[58] "Eye of Belus." Supposed by Ajasson and Desfontaines to be Cat's eye Chalcedony. See Chapter 50, Note 10.

[59] Belus, the father of Ninus, the "Bel" of Scripture. See Chapter 58.

[60] A kind of Tecolithos, Dalechamps says. See B. xxxvi. c. 35, and Chapter 68 of this Book.

with knots of a white and blood-red colour: the use of it as an amulet is avoided, as being apt to produce monstrosities.

Botryitis[61] is sometimes black and sometimes purple-red,[62] and resembles a bunch of grapes[63] in form, when making its first appearance. Zoroaster says, that bostrychitis[64] is a stone which is more like the hair of females than anything else. Bucardia[65] resembles an ox-heart in appearance, and is only found at Babylon. Brontea[66] is a stone like the head of a tortoise, which falls with thunder, it is supposed: if too, we are to believe what is said, it has the property of quenching the fire in objects that have been struck by lightning. Bolos[67] is the name of a stone found in Iberia,[68] similar to a clod of earth in appearance.

CHAP. 56.—CADMITIS. CALLAIS. CAPNITIS. CAPPADOCIA. CALLAICA. CATOCHITIS. CATOPTRITIS. CEPITIS OR CEPOLATITIS. CERAMITIS. CINÆDIA. CERITIS. CIRCOS. CORSOÏDES. CORALLOACHATES. CORALLIS. CRATERITIS. CROCALLIS. CYITIS. CHALCOPHONOS. CHELIDONIA. CHELONIA. CHELONITIS. CHLORITIS. CHOASPITIS. CHRYSOLAMPIS. CHRYSOPIS. CEPONIDES.

Cadmitis differs only from the stone that is known as ostracitis[69] in being sometimes surrounded with blisters of an azure colour. Callais[70] is like sapphiros[71] in colour, only that it is paler and more closely resembles the tint of the

[61] "Grape-cluster stone."

[62] "Puniceus" seems to be a preferable reading to "pampineus," "like a vine-tendril," given by the Bamberg MS.

[63] Possibly it may have been Datholite or Borate of lime, a variety of which is known as Botryolite.

[64] "Hair-stone." This was probably either Iron alum, known also as Alun de plume; Alunogen, known also as Feather Alum or hair salt; or Amianthus, also called satin Asbestus. See B. xxxvi. c 31.

[65] "Ox-heart." Supposed to be a sort of Turquois, Hardouin says.

[66] "Thunder-stone.

[67] "Clod-stone." It may possibly have been a kind of Geodes. See B. xxxvi. c. 32. Dalechamps, however, identifies it with Crapaudine, Toad-stone, or Bufonite, supposed in former times to be produced by the toad, but in reality the fossil tooth of a fish.

[68] See B. iii. c. 4.

[69] See B. xxxiv. c. 22, and Chapter 65 of this Book.

[70] Identical, probably, with the Callaina of Chapter 33, our Turquois.

[71] Lapis lazuli.

water near the sea-shore in appearance. Capnitis,[72] in the opinion of some, is a peculiar species of stone: it is covered with numerous spiral streaks, of a smoky colour, as already[73] stated in the appropriate place. Cappadocia[74] is a native of Phrygia, and resembles ivory in appearance. Callaica[75] is the name given to a stone like a clouded callaina;[76] a number of them are always found united, it is said. Catochitis[77] is a stone found in Corsica, of larger size than the other precious stones; and of a more wonderful nature, if the story is true, that it retains the hand like gum, when placed upon it. Catoptritis[78] is found in Cappadocia, and, from its whiteness, reflects figures like a mirror. Cepitis[79] or cepolatitis is a white stone, with veins upon it uniting together. Ceramitis[80] has a colour like that of earthenware.

Cinædia[81] is a stone found in the brain of a fish[82] of a corresponding name. It is white and oblong, and possessed of marvellous virtues, if we are to put faith in what is said, that it announces before-hand whether the sea will be tranquil or stormy.[83] Ceritis[84] is a stone like wax: circos[85] resembles the plumage of the hawk: corsoides[86] is like white hair in appearance. Coralloachates[87] is very similar to coral, marked with drops of gold; and corallis, a native of India and Syene, resembles minium[88] in appearance. Crateritis[89] is in colour a medium between chrysolithos[90] and amber, and is remarkable

[72] "Smoke-stone." Identical with the jasper called "capnias," in Chapter 37. [73] In Chapter 37 of this Book.

[74] "Cappadocian stone." [75] Like the "callaina" or "callais."

[76] See Chapter 33 of this Book.

[77] "Attractive stone." A large rocky stone, according to Solinus. Dalechamps thinks that it must have been a kind of amber or bitumen, an opinion with which Desfontaines coincides.

[78] "Looking-glass stone," or "mirror stone." A variety of Specular stone, probably.

[79] "Onion stone." A kind of agate, according to Dalechamps. It had its name probably from the union of its streaks like those on the neck of an onion. [80] "Pottery stone." [81] See B. xxix. c. 38, Vol. V. p. 415.

[82] The Cinædus. See B. xxxii. c. 53.

[83] By its clear or clouded colour, it was said. [84] "Wax stone."

[85] From κίρκος, a "hawk" or "falcon."

[86] "Hair-like;" from κόρση, the "hair."

[87] "Coral agate." See Chapter 54 of this Book.

[88] Vermilion See B. xxxiii. cc. 37, 40.

[89] "Strong stone"—from κρατερὸς, "strong." Supposed by some to have been amber-coloured Hyacinth.

[90] Oriental topaz, probably. See Chapters 42 and 43 of this Book.

for its hardness. Crocallis[91] is a gem like the cherry in its tints. Cyitis[92] is a stone found in the vicinity of Coptos; it is white, and to all appearance has an embryo stone within, the rattling of which may be heard on shaking it. Chalcophonos[93] is a black stone, but when struck it clinks like brass: tragic actors are recommended to carry it about them. Of chelidonia[94] there are two varieties, both resembling the swallow in colour: one of them is purple on one side, and the other is purple besprinkled with black spots. Chelonia[95] is the eye of the Indian tortoise, and is the most marvellous of all the stones, if we believe the lying stories told by the magicians. For, according to them, this stone, placed upon the tongue after rinsing the mouth with honey, will ensure power of divination, if this is done at full moon or new moon, for one whole day. If, however, this plan is adopted while the moon is on the increase, the power of divination will be acquired before sun-rise only, and if upon other days, from the first[96] hour to the sixth.

Chelonitis,[97] too, is a stone that resembles the tortoise[98] in appearance, and the many virtues of which are talked of for calming storms and tempests. As to the one that has all the appearance of being sprinkled with spots of gold, if thrown with a scarabæus into boiling water, it will raise a tempest, they say. Chloritis[99] is a stone of a grass-green colour: according to the magicians, it is found in the crop of the motacilla,[1] being engendered with the bird. They recommend also that it should be set in iron, for the purpose of working certain portentous marvels which they promise, as usual. Choaspitis is a stone so called from the river Choaspes,[2] of a brilliant, golden colour mixed with green. Chrysolampis[3] is a

[91] "Saffron-coloured," probably. If this is the meaning of the name, it may be supposed to have resembled the bigaroon cherry.

[92] "Pregnant stone. An aëtites or geodes, probably. See B. xxx. c. 44, and B. xxxvi. c. 39.

[93] "Sounding like brass." Probably Clinkstone or Phonolite, a compact feldspathic rock of a greyish colour, clinking under the hammer when struck, somewhat like a metal.

[94] "Swallow-stone."

[95] "Tortoise-stone."

[96] Six in the morning until mid-day.

[97] "Tortoise-like stone."

[98] "Chelone," in Greek.

[99] "Grass-green stone." It is just possible that the Chlorite of modern Mineralogy, a kind of emerald-green talc, or hydrous silicate of magnesia, may be meant: but we must dismiss the story of the wagtail.

[1] The pied wagtail, Motacilla alba of Linnæus.

[2] See B. vi. c. 31.

[3] "Golden light." Ajasson suggests that this may have been a yellow

native of Æthiopia, and is pale by day, but of a fiery lustre by night. Chrysopis[4] has all the appearance of gold.[5] Ceponides[6] is found at Atarna, a borough, and once a city, of Æolis. It is transparent, presents numerous tints, and has sometimes the appearance of glass, sometimes of crystal, and sometimes of iaspis. Indeed, the stones of this kind that are tarnished even, are possessed of such singular brilliancy as to reflect objects like a mirror.

CHAP. 57.—DAPHNEA. DIADOCHOS. DIPHYES. DIONYSIAS. DRACONITIS.

Daphnea[7] is mentioned by Zoroaster as curative of epilepsy. Diadochos[8] is a stone that resembles the beryl. Of diphyes[9] there are two kinds, the white and the black, male and female, with a line dividing the characteristics of either sex. Dionysias[10] is hard and black, and covered with red spots. Triturated in water, this stone imparts to it the flavour of wine, and it is generally thought to be a preservative against intoxication. Draconitis[11] or dracontia is a stone produced from the brain of the dragon;[12] but unless the head of the animal is cut off while it is alive, the stone will not assume the form of a gem, through spite on the part of the serpent, when finding itself at the point of death: hence it is that, for this purpose, the head is cut off when it is asleep.[13]

Sotacus, who tells us that he once saw a stone of this kind in the possession of a king, says that persons go in search of it in a chariot drawn by two horses; and that, the moment they see the serpent, they strew narcotic drugs in its way, and then cut off its head when asleep. According to him, this stone is white and pellucid, and admits of no polishing or engraving.

phosphate of lead, which emitted light at night, from its close vicinity to naphtha. Bologna stone, Bolognian spar, or sulphate of Barytes, has also been suggested. Topaz, too, is mentioned.

[4] "Golden face."

[5] A variety of Hyacinth, according to Dalechamps.

[6] From κηπὸς, "a garden," it is thought; on account of its varied colours.

[7] "Laurel-stone."

[8] "Substitute" for beryl.

[9] "Two-formed," or "of a double nature." A grand acquisition, as Ajasson remarks, for the worshippers of Priapus. See a similar characteristic in the Eryngium, our Eringo, B. xxii. c. 9: also Mandragora, B. xxv. c. 94, Note 70.

[10] "Stone of Dionysus" or "Bacchus."

[11] "Dragon stone."

[12] The serpent so called—"draco." See B. xxix. c. 20.

[13] A story invented, no doubt, by the sellers of some kind of precious stone.

CHAP. 58.—ENCARDIA OR ARISTE. ENORCHIS. EXEBENUS. ERYTHALLIS. EROTYLOS. AMPHICOMOS, OR HIEROMNEMON. EUMECES. EUMITHRES. EUPETALOS. EUREOS. EUROTIAS. EUSEBES. EPIMELAS.

The stone encardia[14] is also called "ariste."[15] There are three varieties of it; one of a black colour, with a figure in relief upon it like a heart; a second of a green colour, and like a heart in shape; and a third, with a black heart upon it, the rest of the stone being white. Enorchis[16] is a white stone, the fragments of which, when it is split asunder, resemble the testes in shape. Exebenus, Zoroaster tells us, is a white, handsome stone, employed by goldsmiths for polishing gold. Erythallis,[17] though a white stone, assumes a red hue when viewed at an inclined angle. Erotylos,[18] also known as "amphicomos"[19] and "hieromnemon,"[20] is highly praised by Democritus for its use in the art of divination.

Eumeces[21] is a stone of Bactriana, like silex in appearance; placed beneath the head, it produces visions in the night of an oracular description. Eumithres[22] is called by the Assyrians "gem of Belus,"[23] the most sacred of all their gods; it is of a leek-green colour, and greatly in request for superstitious purposes. Eupetalos[24] is a stone that has four different tints, azure, fiery, vermilion, and apple-colour. Eureos[25] is similar to an olive-stone in form, streaked like a shell, and moderately white. Eurotias[26] has all the appearance of concealing its

[14] "Heart-shaped." A turquois, Hardouin thinks. See "Bucardia" in Chapter 55 above. [15] "The best." [16] "Formed like the testes."
[17] "Red stone," apparently. The reading is very doubtful.
[18] The reading is doubtful, but the word may possibly mean "stone of love," or something equivalent. [19] "Fine-haired."
[20] "Skilled in sacred matters."
[21] "Of fair length." Ajasson thinks that this may have been a variety of Pyromachic silex, or gun flint, nearly allied to Chalcedony.
[22] A preferable reading, probably, to "Eumitres." It perhaps took its name from Mithres, the god of the Sun among the Persians, and meant "blessing of Mithres." Ajasson thinks that it may have been green Tourmaline, and that its electric properties may have been very "serviceable to the charlatans who had the monopoly of the Temple of Bel."
[23] See Chapter 55 of this Book.
[24] "With beautiful leaves." By some authorities this is thought to be Opal, by others Heliotrope or Bloodstone. Ajasson thinks that it may have been a general name for Jasper quartz, or else that it was Quartz agate opalized. [25] This reading is very doubtful.
[26] "Mouldy stone."

black colour beneath a coat of mould. Eusebes[27] is the stone, it is said, of which the seat was made in the Temple of Hercules at Tyrus, from which the pious [only] could raise themselves without difficulty. Epimelas[28] is a white gem, with a black hue reflected from its surface.

CHAP. 59.—GALAXIAS. GALACTITIS, LEUCOGÆA, LEUCOGRAPHITIS, OR SYNNEPHITIS. GALLAICA. GASSINADE. GLOSSOPETRA. GORGONIA. GONLÆA.

Galaxias,[29] by some called "galactitis,"[30] is a stone that closely resembles those next mentioned, but is interspersed with veins of blood-red or white. Galactitis[31] is of the uniform colour of milk; other names given to it are, leucogæa,[32] leucographitis,[33] and synnephitis,[34] and, when pounded in water, both in taste and colour it marvellously resembles milk. This stone promotes the secretion of the milk in nursing women, it is said; in addition to which, attached to the neck of infants, it produces saliva, and it dissolves when put into the mouth. They say, too, that it deprives persons of their memory: it is in the rivers Nilus and Acheloüs that it is produced. Some persons give the name of "galactitis" to a smaragdus surrounded with veins of white. Gallaica is a stone like argyrodamas,[35] but of a somewhat more soiled appearance; these stones are found in twos and threes clustered together. The people of Media send us gassinade,[36] a stone like orobus in colour, and sprinkled with flowers, as it were: it is found at Arbela. This stone, too, conceives,[37] it is said; a fact which it admits when shaken; the conception lasting for a period of three months. Glossopetra,[38] which resembles the human tongue, is not engendered, it is said, in the earth, but falls from the heavens during the moon's eclipse; it is considered highly necessary for the purposes of selenomancy.[39] To render all this

[27] "Stone of the religious."

[28] "Black on the surface." This is the case, Ajasson remarks, with many stones of the class known as "Cat's eye."

[29] "Galaxy stone." Ajasson thinks that this may possibly have been an Opal, or a dead white Topaz, traversed by lines of other colours.

[30] "Milk stone." [31] Probably milk-white Quartz, Ajasson thinks.

[32] "White earth." [33] "White-streaked stone." [34] "Clouded."

[35] See Chapter 54 of this Book. [36] An Eastern name, probably.

[37] A Geodes or Aëtites, probably. See B. xxxvi. c. 39, and Chapter 56 of this Book, Note 92. [38] "Tongue of stone."

[39] Divination from the appearance of the moon.

however, still more incredible, we have the evident untruthfulness of one assertion made about it, that it has the property of silencing the winds. Gorgonia[40] is nothing but a coral, which has been thus named from the circumstance that, though soft in the sea, it afterwards assumes the hardness of stone: it has the property of counteracting fascinations,[41] it is said. Goniæa,[42] it is asserted, and with the same degree of untruthfulness, ensures vengeance upon our enemies.

CHAP. 60.—HELIOTROPIUM. HEPHÆSTITIS. HERMUAIDOION. HEXECONTALITHOS. HIERACITIS. HAMMITIS. HAMMONIS CORNU. HORMISCION. HYÆNIA. HÆMATITIS.

Heliotropium[43] is found in Æthiopia, Africa, and Cyprus: it is of a leek-green colour, streaked with blood-red veins. It has been thus named,[44] from the circumstance that, if placed in a vessel of water and exposed to the full light of the sun, it changes to a reflected colour like that of blood; this being the case with the stone of Æthiopia more particularly. Out of the water, too, it reflects the figure of the sun like a mirror, and it discovers eclipses of that luminary by showing the moon passing over its disk. In the use of this stone, also, we have a most glaring illustration of the impudent effrontery of the adepts in magic, for they say that, if it is combined with the plant[45] heliotropium, and certain incantations are then repeated over it, it will render the person invisible who carries it about him.

Hephæstitis[46] also, though a radiant stone, partakes of the properties of a mirror in reflecting objects. The mode of testing it is to put it into boiling water, which should immediately become cold. If exposed to the rays of the sun, it should instantly cause dry fuel to ignite:[47] Corycus[48] is the place where it is found. Hermuaidoion[49] is so called from the

[40] "Gorgon stone." The head of the Gorgon Medusa was fabled to turn those into stone who looked upon it. [41] See B. xxxii. c. 11.

[42] This reading is very doubtful.

[43] Now known as Heliotrope, bloodstone, or blood jasper. It is of a deep-green colour, with red spots. [44] "Turning under the sun."

[45] See B. xxii. c. 29. [46] "Stone of Hephæstos" or "Vulcan."

[47] It acting as a burning-glass, probably.

[48] See B. iv. c. 20, and B. v. c. 22.

[49] "Genitals of Mercury." This singular stone does not appear to have been identified. See Note 9 above.

resemblance to the male organs which it presents, on a ground that is sometimes white, sometimes black, and sometimes of a pallid hue, with a circle surrounding it of a golden colour. Hexecontalithos[50] receives its name from the numerous variety of colours which, small as it is, it presents: it is found in Troglodytica.[51] Hieracitis[52] is entirely covered with mottled streaks, resembling a kite's feathers alternately with black. Hammitis[53] is similar in appearance to the spawn of fish: there is also one variety of it which has all the appearance of being composed of nitre,[54] except that it is remarkably hard. Hammonis cornu[55] is reckoned among the most sacred gems of Æthiopia; it is of a golden colour, like a ram's horn in shape, and ensures prophetic dreams, it is said.

Hormiscion[56] is one of the most pleasing stones to the sight; it is of a fiery colour, and emits rays like gold, tipped at the extremity with a whitish light. Hyænia[57] is derived from the eyes of the hyæna, it is said, the animal being hunted to obtain it; placed beneath the tongue, if we believe the story, it will enable a person to prophesy the future. Hæmatitis,[58] of the very finest quality, comes from Æthiopia, but it is found in Arabia and Africa as well. It is a stone of a blood-red colour, and we must not omit to mention the assurance given [by the magicians], that the possession of it reveals treacherous designs on the part of the barbarians. Zachalias of Babylon, in the books which he dedicated to King Mithridates, attributing the destinies of man to certain properties innate in precious stones, is not content with vaunting the merits of this stone as curative of diseases of the eyes and liver, but recommends it also as ensuring success to petitions addressed to kings. He also makes it play its part in lawsuits and judg-

[50] "Sixty colour stone." [51] See B. v. cc. 5, 8, and B. vi. c. 34.

[52] "Hawk stone." It is perhaps identical with the "Circos," mentioned in Chapter 56. Aëtius says that Hieracitis was of a greenish hue.

[53] "Sand-stone." Ajasson thinks that this was a granular quartz, of a friable nature when subjected to compression.

[54] As to the identity of "nitrum," see B. xxxi. c. 46.

[55] "Horn of [Jupiter] Hammon." He here alludes to the Ammonites of modern Geology, an extinct race of molluscous animals that inhabited convoluted shells, and which are commonly known as "snake-stones." They abound in strata of the secondary formation, and vary from the size of a bean to that of a coach-wheel.

[56] The reading of this word is doubtful. [57] "Hyæna stone."

[58] As to this stone, see B. xxxvi. c. 25.

ments, and even goes so far as to say that it is highly beneficial to be rubbed with it on the field of battle. There is another stone of the same class, called "menui" by the people of India, and "xanthos"[59] by the Greeks: it is of a whitish, tawny colour.

CHAP. 61.—IDÆI DACTYLI. ICTERIAS. JOVIS GEMMA. INDICA. ION.

The stones called Idæi dactyli,[60] and found in Crete, are of an iron colour, and resemble the human thumb in shape. The colour of icterias[61] resembles that of livid skin, and hence it is that it has been thought so excellent a remedy for jaundice. There is also another stone of this name, of a still more livid colour; while a third has all the appearance of a leaf. This last is broader than the others, almost imponderous, and streaked with livid veins. A fourth kind again is of the same colour, but blacker, and marked all over with livid veins. Jovis gemma[62] is a white stone, very light, and soft: another name given to it is "drosolithos."[63] Indica[64] retains the name of the country that produces it: it is a stone of a reddish colour, and yields a purple liquid[65] when rubbed. There is another stone also of this name, white, and of a dusty appearance. Ion[66] is an Indian stone, of a violet tint: it is but rarely, however, that it is found of a deep, full, colour.

CHAP. 62.—LEPIDOTIS. LESBIAS. LEUCOPHTHALMOS. LEUCOPŒCILOS. LIBANOCHRUS. LIMONIATIS. LIPAREA. LYSIMACHOS. LEUCOCHRYSOS.

Lepidotis[67] is a stone of various colours, and resembles the scales of fish in appearance. Lesbias, so called from Lesbos which produces it, is a stone found in India as well. Leucophthalmos,[68] which in other respects is of a reddish hue, presents all the appearance of an eye, in white and black.

[59] "Yellow" stone. See Chapter 45.

[60] "Idæan fingers." These were probably Belemnites, so called from their long, tapering shape, and being first observed, perhaps, on Mount Ida in Crete. Belemnites are the shells of fossil Cephalopods, and are commonly known as "thunder stones."

[61] "Jaundice stone."

[62] "Gem of Jove."

[63] "Dew stone."

[64] "Indian stone."

[65] It is just possible that he may be thinking of Indigo here, which he has before called by the same name. See B. xxxiii. c. 57.

[66] "Violet-coloured."

[67] "Scale stone." A fossil, probably.

[68] "White eye." Cat's eye chalcedony, perhaps. See "Astrobolos" in Chapter 48, and "Beli oculus" in Chapter 55, of this Book.

Leucopœcilos[69] is white, variegated with drops of vermilion of a golden hue. Libanochrus[70] strongly resembles frankincense, and yields a liquid like honey. Limoniatis[71] would appear to be the same as smaragdus; and all that we find said about liparea[72] is, that employed in the form of a fumigation, it allures all kinds of wild beasts. Lysimachos resembles Rhodian marble, with veins of gold: in polishing it, it is reduced very considerably in size, in order to remove all defects. Leucochrysos[73] is a kind of chrysolithos interspersed with white.

CHAP. 63.—MEMNONIA. MEDIA. MECONITIS. MITHRAX. MOROCHTHOS. MORMORION OR PROMNION. MURRHITIS. MYRMECIAS. MYRSINITIS. MESOLEUCOS. MESOMELAS.

What kind of stone memnonia[74] is, we do not find mentioned. Medea[75] is a black stone, said to have been discovered by the Medea[76] of fable: it has veins of a golden lustre, and yields a liquid like saffron in colour and with a vinous flavour. Meconitis[77] strongly resembles poppies. Mithrax[78] comes from Persia and the mountains of the Red Sea: it is of numerous colours, and reflects various tints when exposed to the sun.[79] Morochthos[80] is a stone of a leek-green colour, from which a milk exudes. Mormorion[81] is a transparent stone from India, of a deep black colour, and known also as "promnion." When it has a mixture of the colour[82] of carbunculus, it is from Alexandria; and when it shares that of sarda,[83] it is a native of Cyprus. It is found also at Tyrus and in Galatia; and, according to Xenocrates, it has been discovered at the foot of the

69 "Variegated with white."
70 "Yellow incense."
71 "Meadow-green stone."
72 "Fat stone."
73 "White gold." Ajasson thinks that this may have been either a subvariety of Hyalin amethystine quartz, a yellow quartz or false topaz, or else an unctuous, white quartz, either opaque or transparent.
74 "Stone of Memnon."
75 This reading seems preferable to "Media," given by the Bamberg and some other MSS.
76 The enchantress of Colchis. The stone, no doubt was as fabulous as the enchantress.
77 "Poppy stone."
78 For the origin of this name, see "Eumithres," in Chapter 58, Note 22.
79 It was probably a kind of Opal.
80 The reading here is very doubtful.
81 This reading also is doubtful: it is probably an Eastern word. According to some authorities, this stone was a dark-brown rock crystal. Ajasson identifies it with Schorl or black Tourmaline, with a base of Magnesia.
82 Red Tourmaline, possibly, or Rubellite.
83 Carnelian. See Chapter 31 of this Book.

Alps. These stones are well adapted for cutting in relief.[84] Murrhitis[85] has just the colour of myrrh, and very little of the appearance of a gem: it has the odour also of an unguent, and smells like nard when rubbed. Myrmecias[86] is black, and has excrescences upon it like warts. Myrsinitis[87] has a colour like that of honey, and the smell of myrtle. "Mesoleucos"[88] is the name given to a stone when a white line runs through the middle; and when a black vein intersects any other colour, it is called "mesomelas."[89]

CHAP. 64.—NASAMONITIS. NEBRITIS. NIPPARENE.

Nasamonitis is a blood-red stone, marked with black veins. Nebritis, a stone sacred to Father Liber,[90] has received its name from its resemblance to a nebris.[91] There is also another stone of this kind, that is black. Nipparene[92] bears the name of a city and people of Persia, and resembles the teeth of the hippopotamus.

CHAP. 65.—OICA. OMBRIA OR NOTIA. ONOCARDIA. ORITIS OR SIDERITIS. OSTRACIAS. OSTRITIS. OPHICARDELON. OBSIAN STONE.

Oica is the barbarian name given to a stone which is pleasing for its colours, black, reddish yellow, green, and white. Ombria,[93] by some called notia,"[94] falls with showers and lightning, much in the same manner as ceraunia[95] and brontea,[96] the properties of which it is said to possess. There is a statement also, that if this stone is placed upon altars it will prevent the offerings from being consumed. Onocardia[96*] is like kermesberry in appearance, but nothing further is said about it. Oritis,[97] by some called "sideritis,"[98] is a stone of

[84] "Ectypæ sculpturæ." See B. XXXV. c. 43.

[85] "Myrrh stone." It was an Eastern compound, probably. See Chapter 54, Note 25. [86] "Wart stone." [87] "Myrtle stone."

[88] "White in the middle." This and the next seem to have been general names for stones of a particular appearance.

[89] "Black in the middle." [90] Bacchus.

[91] A Greek word, signifying the skin of a fawn or deer, as worn by the Bacchanals in the celebration of their orgies. Ajasson is of opinion that this was a mottled quartz or agate, similar to those mentioned as resembling the spots of the lion, in Chapter 54, the Leontios and Pardalios of Chapter 73.

[92] This reading is doubtful. [93] "Shower stone," apparently.

[94] From "Notus," the south wind, which usually brought rain.

[95] See Chapters 48 and 51. [96] See Chapter 55 of this Book.

[96*] "Ass's heart." [97] "Mountain stone." [98] See Chapter 67.

globular form, and proof against the action of fire. Ostracias,[99] or ostracitis, is a testaceous stone, harder than ceramitis,[1] and similar in all respects to achates,[2] except that the latter has an unctuous appearance when polished: indeed, so remarkably hard is ostracitis, that with fragments of it other gems are engraved. Ostritis[3] receives its name from its resemblance to an oyster-shell. Ophicardelon is the barbarian name for a stone of a black colour, terminated by a white line on either side. Of Obsian[4] stone we have already spoken in the preceding Book. There are gems, too, of the same name and colour, found not only in Æthiopia and India, but in Samnium as well, and, in the opinion of some, upon the Spanish shores that lie towards the Ocean.

CHAP. 66.—PANCHRUS. PANGONUS. PANEROS OR PANERASTOS. PONTICA; FOUR VARIETIES OF IT. PHLOGINOS OR CHRYSITIS. PHŒNICITIS. PHYCITIS. PERILEUCOS. PÆANITIS OR GÆANIS.

Panchrus[5] is a stone which displays nearly every colour. Pangonus[6] is no longer than the finger: the only thing that prevents it from being taken for a crystal, is, its greater number of angles. What kind of stone paneros[7] is, Metrodorus does not inform us; but he gives some lines, by no means without elegance, that were written upon this stone by Queen Timaris, and dedicated to Venus; from which we have reason to conclude that certain fecundating virtues were attributed to it. By some writers it is called panerastos.[8] Of the stone called "pontica"[9] there are numerous varieties: one is stellated, and presents either blood-red spots, or drops like gold, being reckoned in the number of the sacred stones. Another, in place of stars, has streaks of the same colour, and a fourth presents all the appearance of mountains and valleys.

[99] "Shell-stone." Not the same, probably, as the Cadmitis or Ostracitis mentioned in Chapter 56 of this Book. See B. XXXVI. c. 31, where a stone of this name is also mentioned. Horn-stone, probably, a Chalcedony, more brittle than flint, is meant in the present passage.

[1] See Chapter 56 of this Book. [2] See the beginning of Chapter 54.

[3] "Oyster-stone." [4] See B. XXXVI. chap. 67; our "Obsidian."

[5] "Of all colours." Either Opal, Ajasson thinks, or Iridized hyalin quartz.

[6] "All corners." Ajasson seems to think that this may have been Hyalin quartz. [7] "Worthy of all love."

[8] Of the same meaning as "paneros."

[9] "Gem of Pontus." According to Desfontaines, these stones are identified, by some with agates, by others with sapphires.

Phloginos,[10] also called "chrysitis,"[11] strongly resembles Attic ochre,[12] and is found in Egypt. Phœnicitis[13] is a stone so called from its resemblance to a date. Phycitis receives its name from its resemblance to sea-weed.[14] Perileucos[15] is the name given to a gem, in which a white colour runs down from the margin of the stone to the base. Pæanitis,[16] by some called "gæanis,"[17] conceives, it is said, and is good for females at the time of parturition: this stone is found in Macedonia, near the monument[18] of Tiresias there, and has all the appearance of congealed water.

CHAP. 67.—SOLIS GEMMA. SAGDA. SAMOTHRACIA. SAURITIS. SARCITIS. SELENITIS. SIDERITIS. SIDEROPŒCILOS. SPONGITIS. SYNODONTITIS. SYRTITIS. SYRINGITIS.

Solis gemma[19] is white, and, like the luminary from which it takes its name, emits brilliant rays in a circular form. Sagda is found by the people of Chaldæa adhering to ships, and is of a leek-green colour. The Isle of Samothrace gives its name to a stone[20] which it produces, black and imponderous, and similar to wood in appearance. Sauritis[21] is found, they say, in the belly of the green lizard, cut asunder with a reed. Sarcitis[22] is a stone, like beef in appearance. Selenitis[23] is white and transparent, with a reflected colour like that of honey. It has a figure within it like that of the moon, and reflects the face of that luminary, if what we are told is true, according to its phases, day by day, whether on the wane or whether on the increase: this stone is a native of Arabia, it is thought. Sideritis[24] is a

[10] "Flame-coloured." [11] "Golden-coloured stone."

[12] See B. xxxiii. c. 56, and B. xxxv. cc. 12, 16.

[13] "Palm-date stone. Desfontaines says that this is Jew stone, the fossil spine of an egg-shaped echinus. See Chapter 56, Note 55.

[14] Φῦκος; whence the Latin "fucus." [15] "White around."

[16] An Aëtites or Geodes, probably. See Chapter 56, Note 92; also B. xxx. c. 44, and B. xxxvi. cc. 32, 39. [17] "Earth stone," apparently.

[18] The tomb of Tiresias was ordinarily pointed out in the vicinity of the Tilphusan Well, near Thebes; at least Pausanias states to that effect.

[19] "Gem of the Sun." According to some, this is the Girasol opal; but Ajasson has no doubt, from the description given of it by Photius, from Damascius, that it is identical with the "Asteria" of Chapter 47. See also the "Astrion" of Chapter 48. [20] Supposed to be jet.

[21] "Lizard stone." [22] "Flesh stone"

[23] "Moon stone." Our Selenite probably, crystallized sulphate of lime: the thin laminæ of which reflect the disk of the sun or moon.

[24] "Stone like iron." See "Oritis" in Chapter 65; also B. xxxvi. c. 25, and Chapter 15 of this Book, for minerals of this name.

stone like iron, the presence of which in lawsuits creates discord. Sideropœcilos,[25] which is a variety of the same stone, is a native of Æthiopia, and is covered with variegated spots.

Spongitis has its name from its resemblance to sponge. Synodontitis is a stone found in the brain of the fish known as "synodus."[26] Syrtitis is a stone that used formerly to be found on the shores of the Syrtes,[27] though now it is found on the coasts of Lucania as well: it is of a honey colour, with a reflected tint of saffron, and contains stars of a feeble lustre within. Syringitis[28] is hollow throughout, like the space between the two joints in a straw.

CHAP. 68. — TRICHRUS. THELYRRHIZOS. THELYCARDIOS OR MULC. THRACIA; THREE VARIETIES OF IT. TEPHRITIS. TECOLITHOS.

Trichrus[29] comes from Africa: it is of a black colour, but yields three different liquids, black at the lower part, blood-red in the middle, and of an ochre colour at the top. Thelyrrhizos[30] is of an ashy or russet colour, but white at the lower part. Thelycardios[31] is like a heart in colour, and is held in high esteem by the people of Persia, in which country it is found: the name given to it by them is "mulc." Of thracia[32] there are three varieties; a green stone, one of a more pallid colour, and a third with spots like drops of blood. Tephritis[33] is crescent-shaped, with horns like those of the new moon, but it is of an ashy colour. Tecolithos[34] has all the appearance of an olive stone: it is held in no estimation as a gem, but a solution of it will break and expel urinary calculi.

25 "Variegated iron."

26 So called from its teeth meeting evenly, like the jaw-teeth, and not shaped like those of a saw, so formed that the teeth of one jaw lock with those of the other. See B. xi. c. 5. The Linnæan genus Sparus is of this kind.

27 See B. v. cc. 4, 5, and B. vi. c. 37.

28 "Fistulous stone."

29 "Three-coloured stone."

30 Meaning "Female root," apparently. The reading, however, is uncertain.

31 "Female heart," apparently. The reading is doubtful.

32 "Thracian stone." The reading, however, is doubtful.

33 "Ash-coloured stone." It has been identified with Uranian agate by some.

34 "Dissolving stone." Probably our Jew stone, and identical with the Phœnicitis of Chapter 66. See Note 13.

CHAP. 69.—VENERIS CRINES. VEIENTANA.

Veneris crines[35] is the name given to a stone that is remarkably black and shining, with an appearance like red hair within. Veientana is an Italian stone, found at Veii: it is black, divided by a line of white.

CHAP. 70.—ZATHENE. ZMILAMPIS. ZORANISCÆA.

Zathene, according to Democritus, is a native of Media. It is like amber in colour, and, if beaten up with palm-wine and saffron, it will become soft like wax, yielding a very fragrant smell. Zmilampis is found in the river Euphrates: it resembles marble of Proconnesus in appearance, and is of a sea-green colour within. Zoraniscæa is found in the river Indus: it is a stone used by magicians, it is said, but I find no further particulars relative to it.

CHAP. 71. (11.)—PRECIOUS STONES WHICH DERIVE THEIR NAMES FROM VARIOUS PARTS OF THE HUMAN BODY. HEPATITIS. STEATITIS. ADADUNEPHROS. ADADUOPHTHALMOS. ADADUDACTYLOS. TRIOPHTHALMOS.

There is also another method of classifying stones; according to the resemblance which they bear to various other objects. Thus, for example, the different parts of the body give the following names to stones:—Hepatitis[36] is so called from the liver; and steatitis[37] from its resemblance to the fat of various animals. Adadunephros, adaduophthalmos, and adadudactylos, mean "kidney of Adad," "eye of Adad," and "finger of Adad," a god[38] of the Syrians so called. Triophthalmos[39] is a stone found in conjunction with onyx, which resembles three human eyes at once.

[35] "Venus' hair." As Ajasson remarks, the description renders it next to impossible to say what the stone was.

[36] "Liver stone." Heavy spar, a sulphate of barytes, is sometimes called Hepatite.

[37] "Fat stone." Saponite or soapstone, a silicate of magnesia, is also known as Steatite.

[38] An ancient king of Syria, worshipped by the people of that country and the inhabitants of Phrygia. According to Macrobius, the Assyrians worshipped Jupiter and the Sun under this name.

[39] "Three-eye stone." Some kind of Cat's eye chalcedony, probably.

CHAP. 72.—PRECIOUS STONES WHICH DERIVE THEIR NAMES FROM ANIMALS. CARCINIAS. ECHITIS. SCORPITIS. SCARITIS. TRIGLITIS. ÆGOPHTHALMOS. HYOPHTHALMOS. GERANITIS. HIERACITIS. AETITIS. MYRMECITIS. CANTHARIAS. LYCOPHTHALMOS. TAOS. TIMICTONIA.

Other stones, again, derive their names from various animals. Carcinias[40] is so called from the colour of the sea-crab; echitis,[41] from the colour of the viper; scorpitis,[42] from either the colour or the shape of the scorpion; scaritis, from the fish called scarus;[43] triglitis, from the sur-mullet;[44] ægophthalmos, from the eye of the goat; hyophthalmos, from the eye of the swine; geranitis, from the neck of the crane; hieracitis, from the neck of the hawk; and aëtitis, from the colour of the white-tailed eagle. Myrmecitis[45] presents the appearance of an ant crawling within, and cantharias,[46] of a scarabæus. Lycophthalmos[47] is a stone of four different colours; on the exterior it is ruddy and blood-red, and within it is black, surrounded with a line of white, closely resembling the eye of the wolf in every respect. Taos[48] is a stone with colours like those of the peacock. Timictonia, I find, is the name of a stone, like the asp in colour.

CHAP. 73.—PRECIOUS STONES WHICH DERIVE THEIR NAMES FROM OTHER OBJECTS. HAMMOCHRYSOS. CENCHRITIS. DRYITIS. CISSITIS. NARCISSITIS. CYAMIAS. PYREN. PHŒNICITIS. CHALAZIAS. PYRITIS. POLYZONOS. ASTRAPÆA. PHLOGITIS. ANTHRACITIS. ENHYGROS. POLYTHRIX. LEONTIOS. PARDALIOS. DROSOLITHOS. MELICHRUS. MELICHLOROS. CROCIAS. POLIAS. SPARTOPOLIAS. RHODITIS. CHALCITIS. SYCITIS. BOSTRYCHITIS. CHERNITIS. ANANCITIS. SYNOCHITIS. DENDRITIS.

Hammochrysos[49] resembles sand in appearance, but sand mixed with gold. Cenchritis[50] has all the appearance of grains of millet scattered here and there. Dryitis[51] resembles the trunk of a tree, and burns like wood. Cissitis,[52] upon a white,

[40] "Crab stone." [41] "Viper-stone." [42] "Scorpion stone."
[43] See B. ix. c. 29, B. xi. c. 61, and B. xxxii. c. 53. This was perhaps the same stone as the "Synodontitis" of Chapter 67.
[44] Which was called τριγλὰ, in Greek.
[45] "Ant stone." Possibly a kind of amber. [46] "Beetle stone."
[47] "Wolf's eye." [48] "Peacock stone."
[49] "Golden sand." This may possibly have been Aventurine quarts.
[50] "Millet stone." [51] "Oak stone." Fossil coal, perhaps.
[52] "Ivy stone."

transparent surface, has leaves of ivy running all over it. Narcissitis[53] is distinguished by veins on the surface, and has a smell like that of the narcissus. Cyamias[54] is a black stone, but when broken, produces a bean to all appearance. Pyren[55] is so called from its resemblance to an olive-stone: in some cases it would appear to contain the back-bone[56] of a fish. Phœnicitis[57] resembles a palm-date in form. Chalazias[58] resembles a hailstone, both in form and colour: it is as hard as adamant, so much so, indeed, that in the fire even it retains its coolness, it is said. Pyritis,[59] though a black stone, burns the fingers when rubbed by them. Polyzonos[60] is a black stone traversed by numerous zones of white.

Astrapæa[61] has rays like flashes of lightning, running across the middle on a ground of white or blue. In phlogitis,[62] there is, to all appearance, a flame burning within, but not reaching the surface of the stone. In anthracitis,[63] there are sometimes sparks, to all appearance, flying to and fro. Enhygros[64] is always perfectly round, smooth, and white; but when it is shaken a liquid is heard to move within, just like the yolk within an egg. Polythrix[65] presents the appearance of hair upon a green surface; but it causes the hair to fall off, it is said. Leontios and pardalios[66] are names given to stones, from their resemblance to the skin of the lion and panther. Drosolithos[67] has received its name from its colour. Melichrus is a honey-coloured stone, of which there are several varieties.

[53] "Daffodil stone." An Eastern compound, probably.

[54] "Bean stone."

[55] "Our Jew stone," probably; identical with the Phœnicitis of Chapter 66 and the Tecolithos of Chapter 68.

[56] See Note 13 to Chapter 66.

[57] See Chapter 66.

[58] See B. XXXVI. c. 43. Pebbles of white flint were probably meant under this name; from which is derived, according to Ajasson, the French word *caillou*, meaning a flint pebble.

[59] "Fire stone." Not a Pyrites of modern Mineralogy, probably.

[60] "With many zones." Probably an agate or jasper.

[61] "Lightning stone."

[62] "Flame stone."

[63] "Burning coal stone." See B. XXXVI. c. 38, and Chapter 27 of this Book.

[64] "Containing liquid." Identified by Desfontaines with the Geodes enhydros of modern Geology, which sometimes contains a liquid substance.

[65] "Many-haired stone."

[66] As to these stones, agates or jaspers probably, see "Nebritis," in Chapter 64, and the Note.

[67] "Dew stone." The reading here is very doubtful. See Chapter 61.

Melichloros[68] is a stone of two colours, partly honey-coloured, partly yellow. Crocias[69] is the name given to a stone which reflects a colour like that of saffron; polias, to a stone resembling white hair in colour; and spartopolias, to a stone more thinly sprinkled with white.

Rhoditis is like the rose in colour, chalcitis resembles copper, and sycitis[70] is in colour like a fig. Bostrychitis[71] is covered with branches of a white or blood-red colour, upon a ground of black; and chernitis[72] has, on a stony surface, a figure like that of two hands grasping each other. Anancitis[73] is used in hydromancy, they say, for summoning the gods to make their appearance; and synochitis,[74] for detaining the shades from below when they have appeared. If white dendritis[75] is buried beneath a tree that is being felled, the edge of the axe will never be blunted, it is asserted. There are many other stones also, of a still more outrageously marvellous nature, to which, admitted as it is that they are stones, barbarous names have been given: we have refuted, however, a quite sufficient number of these portentous lies already.

### CHAP. 74. (12.)—PRECIOUS STONES THAT SUDDENLY MAKE THEIR APPEARANCE. COCHLIDES.

New species of precious stones are repeatedly brought into existence, and fresh ones are found all at once, destitute of names. Thus, for example, there was a stone formerly discovered in the gold-mines of Lampsacus, which, on account of its extraordinary beauty, was sent to King Alexander, as we learn from Theophrastus.[76] Cochlides,[77] too, which are now so common, are rather artificial productions than natural, and in Arabia there have been found vast masses of them; which are boiled, it is said, in honey, for seven days and nights without intermission. By doing this, all earthy and faulty particles are removed; after which, the mass, thus cleansed and purified, is adorned by the ingenuity of artists with variegated veins and spots, and cut into such shapes as may be most to the taste of purchasers. Indeed, these articles, in former times, were made

[68] "Honey-coloured and yellow." [69] "Saffron stone."
[70] All three being derived from the corresponding name in Greek.
[71] See Chapter 55 of this Book. [72] "Hand stone."
[73] "Stone of necessity." [74] "Retaining stone." [75] "Tree stone."
[76] De Lapidibus. [77] He alludes to petrified shells, most probably.

of so large a size, that they were employed in the East as frontals for the horses of kings, and as pendants for their trappings.[78]

All precious stones in general are improved in brilliancy by being boiled in honey, Corsican honey more particularly; but acrid substances are in every respect injurious to them. As to the stones which are variegated, and to which new colours are imparted by the inventive ingenuity of man, as they have no name in common use, they are usually known by that of "physis;"[79] a name which claims for them, as it were, that admiration which we are more ready to bestow upon the works of Nature. But really, these artificial stones have names without end, and I could never think of recounting the infinite series of them, coined as they have been by the frivolous tendencies of the Greeks.

Having already described the more noble gems, and indeed those of inferior quality which are found among the stones that are held in high esteem, I must content myself with knowing that I have pointed out those kinds which are the most deserving of mention. It will be as well, however, for the reader to bear in mind, that, according to the varying number of the spots and inequalities on their surface, according to the numerous intersections of lines and their multiplied tints and shades, the names of precious stones are subject to repeated changes; the material itself, for the most part, remaining just the same.

### CHAP. 75.—THE VARIOUS FORMS OF PRECIOUS STONES.

We will now make some observations in reference to precious stones in general, following therein the opinions that have been expressed by various authors. Stones with a level surface are preferred to those which are concave or protuberant on the face. An oblong shape is the one that is most approved of, and, next to that, the lenticular[80] form, as it is called. After this, the stone with a plane surface and circular is admired, those which are angular being held in the least esteem. There is considerable difficulty in distinguishing genuine stones from false; the more so, as there has been discovered a method of transforming genuine stones of one kind into false stones of

[78] "Phaleræ." See B. vii. c. 2, and B. xxxiii. c. 6.

[79] "Nature;" *i. e.* "works of Nature."

[80] "Lenticula." Like a lentil in shape.

another.[81] Sardonyx, for example, is imitated by cementing together three other precious stones, in such a way that no skill can detect the fraud; a black stone being used for the purpose, a white stone, and one of a vermilion[82] colour, each of them, in its own way, a stone of high repute. Nay, even more than this, there are books in existence, the authors of which I forbear to name,[83] which give instructions how to stain crystal in such a way as to imitate smaragdus and other transparent stones, how to make sardonyx of sarda, and other gems in a similar manner. Indeed, there is no kind of fraud practised, by which larger profits are made.

CHAP. 76. (13.)—THE METHODS OF TESTING PRECIOUS STONES.

On the contrary, we will make it our business to point out the methods of detecting these false stones, seeing that it is only proper to put luxury even on its guard against fraud. In addition to the particulars which we have already given, when treating of each individual kind of precious stone, it is generally agreed that transparent stones should be tested by a morning light, or even, if necessary, so late as the fourth[84] hour, but never after that hour. The modes of testing[85] stones are numerous: first, by their weight, the genuine stone being the heavier of the two; next, by their comparative coolness, the genuine stone being cooler than the other to the mouth; and, next to that, by their substance; there being blisters perceptible in the body of the fictitious stone, as well as a certain roughness on the surface; filaments, too, an unequal brilliancy, and a brightness that falls short before it reaches the eye. The best[86] mode of testing is to strike off a fragment with an iron saw; but this is a thing not allowed by the dealers, who equally refuse to let their gems be tested by the file. Dust of Obsian[87] stone will not leave a mark upon the surface of a genuine stone: but where the gem is artificial,

[81] Substituting garnets for rubies, as an illustration.

[82] "Minium." See Chaper 23 of this Book.

[83] Lest the deception should be commonly practised. Seneca, Epist. 19, mentions one Democritus, who had discovered the art of making artificial Emeralds. See further on this subject, Beckmann, Hist. Inv. Vol. I. p. 124. *Bohn's Edition.*

[84] Ten in the morning.

[85] See Chapters 18 and 20.

[86] We can only guess at the meaning of this passage, as it is acknowledgedly corrupt.

[87] Our Obsidian. See B. XXXVI. c. 67, and Chapter 65 of this Book.

every mark that is made will leave a white scratch upon it. In addition to this, there is such a vast diversity in their degrees of hardness, that some stones do not admit of being engraved with iron, and others can only be cut with a graver blunted at the edge. In all cases, however, precious stones may be cut and polished by the aid of adamas:[88] an operation which may be considerably expedited by heating the graver. The rivers which produce precious stones, are the Acesinus[89] and the Ganges; and, of all countries, India is the most prolific of them.

CHAP. 77.—A COMPARATIVE VIEW OF NATURE AS SHE APPEARS IN DIFFERENT COUNTRIES. THE COMPARATIVE VALUES OF THINGS.

Having now treated of all the works of Nature, it will be as well to take a sort of comparative view of her several productions, as well as the countries which supply them. Throughout the whole earth, then, and wherever the vault of heaven extends, there is no country so beautiful, or which, for the productions of Nature, merits so high a rank as Italy, that ruler and second parent of the world; recommended as she is by her men, her women, her generals, her soldiers, her slaves, her superiority in the arts, and the illustrious examples of genius which she has produced. Her situation, too, is equally in her favour; the salubrity and mildness of her climate; the easy access which she offers to all nations; her coasts indented with so many harbours; the propitious breezes, too, that always prevail on her shores; advantages, all of them, due to her situation, lying, as she does, midway between the East and the West, and extended in the most favourable of all positions. Add to this, the abundant supply of her waters, the salubrity of her groves, the repeated intersections of her mountain ranges, the comparative innocuousness of her wild animals, the fertility of her soil, and the singular richness of her pastures.

Whatever there is that the life of man ought not to feel in want of, is nowhere to be found in greater perfection than here; the cereals, for example, wine, oil, wool, flax, tissues, and oxen. As to horses, there are none, I find, preferred to those of Italy for the course;[90] while, for mines of gold, silver,

[88] See Chapter 15 of this Book. Ajasson thinks that he has here confounded two different substances, powdered emery and diamond dust.

[89] See B. iv. c. 26.

[90] "Trigariis." "Three-horse chariot races," literally. See B. xxviii. c. 72, and B. xxix. c. 5.

copper, and iron, so long as it was deemed lawful to work them,[91] Italy was held inferior to no country whatsoever. At the present day, teeming as she is with these treasures, she contents herself with lavishing upon us, as the whole of her bounties, her various liquids, and the numerous flavours yielded by her cereals and her fruits. Next to Italy, if we except the fabulous regions of India, I would rank Spain, for my own part, those districts, at least, that lie in the vicinity of the sea.[92] She is parched and sterile in one part, it is true; but where she is at all productive, she yields the cereals in abundance, oil, wine, horses, and metals of every kind. In all these respects, Gaul is her equal, no doubt; but Spain, on the other hand, outdoes the Gallic provinces in her spartum[93] and her specular stone,[94] the products of her desert tracts, in her pigments that minister to our luxuries, in the ardour displayed by her people in laborious employments, in the perfect training of her slaves, in the robustness of body of her men, and in their general resoluteness of character.

As to the productions themselves, the greatest value of all, among the products of the sea, is attached to pearls: of objects that lie upon the surface of the earth, it is crystals that are most highly esteemed: and of those derived from the interior, adamas,[95] smaragdus,[96] precious stones, and murrhine,[97] are the things upon which the highest value is placed. The most costly things that are matured by the earth, are the kermes-berry[98] and laser;[99] that are gathered from trees, nard[1] and Seric tissues;[2] that are derived from the trunks of trees, logs of citrus[3]-wood; that are produced by shrubs, cin-

[91] It having been in recent times declared unlawful to work them, as he has already informed us.

[92] "Quacunque ambitur mari." With these words the Natural History of Pliny terminates in all the former editions. M. Ian was the first among the learned to express a suspicion that the proper termination of the work was *wanting*; an *opinion* in which Sillig coincided, and which was happily confirmed, in the course of time, by the discovery of the Bamberg MS., the only copy of the Natural History (or rather the last Six Books) in which the concluding part of this Chapter has been found.

[93] See B. xix. c. 7. [94] See B. xxxvi. c. 45.

[95] See Chapter 15 of this Book. [96] See Chapter 16 of this Book.

[97] See Chapters 7, 8, and 11 of this Book.

[98] "Coccum." See B. xvi. c. 12, and B. xxiv. c. 4.

[99] See B. xix. c. 15, and B. xxii. c. 49. [1] See B. xii. c. 26.

[2] See B. vi. c. 20, and B. xii. c. 1. [3] See B. xiii. c. 29, and B. xv. c. 7.

namon,[4] cassia,[5] and amomum ;[6] that are yielded by the juices of trees or of shrubs, amber,[7] opobalsamum,[8] myrrh,[9] and frankincense ;[10] that are found in the roots of trees, the perfumes derived from costus.[11] The most valuable products furnished by living animals, on land, are the teeth of elephants; by animals in the sea, tortoise-shell ; by the coverings of animals, the skins which the Seres[12] dye, and the substance gathered from the hair of the she-goats of Arabia, which we have spoken of under the name of "ladanum ;"[13] by creatures that are common to both land and sea, the purple[14] of the murex. With reference to the birds, beyond plumes for warriors' helmets, and the grease that is derived from the geese of Commagene,[15] I find no remarkable product mentioned. We must not omit, too, to observe, that gold, for which there is such a mania with all mankind, hardly holds the tenth rank as an object of value, and silver, with which we purchase gold, hardly the twentieth !

Hail to thee, Nature, thou parent of all things! and do thou deign to show thy favour unto me, who, alone of all the citizens of Rome, have, in thy every department,[16] thus made known thy praise.[17]

Summary.—Facts, narratives, and observations, one thousand three hundred.

Roman Authors quoted.—M. Varro,[18] the Register of the Triumphs,[19] Mæcenas,[20] Iacchus,[21] Cornelius Bocchus.[22]

Foreign Authors quoted.—King Juba,[23] Xenocrates[24] the

[4] See B. xii. c. 42. [5] See B. xii. c. 43. [6] See B. xii. c. 28.
[7] See Chapter 11 of this Book. [8] See B. xii. c. 64.
[9] See B. xii. c. 33. [10] See B. xii. c. 30. [11] See B. xii. c. 25.
[12] See B. xxxiv. c. 41. [13] In B. xii. c. 37, and B. xxvi. c. 30.
[14] See B. ix. cc. 60, 61 [15] See B. x. c. 28, and B. xxix. c. 13.
[16] "Numeris omnibus."
[17] Bernhardy, *Grundriss d. Röm. Lit.* p. 644, has expressed an opinion that there is still some deficiency after the concluding words, "tuis fave;" notwithstanding the comparative completeness of the restored text as given by the Bamberg MS.
[18] See end of B. ii. [19] See end of B. v. [20] See end of B. ix.
[21] See end of B. xxxii. [22] See end of B. xvi. [23] See end of B. v.
[24] See end of B. xxxiii.

son of Zeno, Sudines,[25] Æschylus,[26] Philoxenus,[27] Euripides,[28] Nicander,[29] Satyrus,[30] Theophrastus,[31] Chares,[32] Philemon,[33] Demostratus,[34] Zenothemis,[35] Metrodorus,[36] Sotacus,[37] Pytheas,[38] Timæus[39] the Sicilian, Nicias,[40] Theochrestus,[41] Asarubas,[42] Mnaseas,[43] Theomenes,[44] Ctesias,[45] Mithridates,[46] Sophocles,[47]

[25] See end of B. xxxvi. [26] See end of B. x.

[27] A Dithyrambic poet, a native of Cythera, or, according to some, of Heraclea in Pontus. During the latter part of his life he resided at the court of the younger Dionysius, tyrant of Sicily, and died B.C. 380, at the age of 55. Of his poems, only a few fragments are left.

[28] One of the great Tragic Poets of Greece, born at Salamis B.C. 480. Of his Tragedies, eighteen are still extant, out of seventy-five, or, according to some accounts, ninety-two, which he originally wrote.

[29] See end of B. viii. [30] Nothing positive seems to be known of this author, who is mentioned in Chapters 11, 24, and 25 of the present Book as having written on Precious Stones. It is possible that he may have been the architect mentioned in B. xxxvi. c. 14. Hardouin would identify him with a Comic writer of Olynthus, of this name.

[31] See end of B. iii. [32] See end of B. xii. [33] See end of B. x.

[34] A Roman senator, who wrote a work on Fishing, in 26 Books, one on Hydromancy or aquatic divination, and other works connected with history. It is probably from a work of his, "On Rivers," that Plutarch quotes. See Chapters 11 and 23 of the present Book.

[35] Author of a "Periplus," and of a poem "on the Fabulous forms of Men," both mentioned by Tzetzes. See Chapters 11, 23, 24, and 51 of this Book. [36] See end of Books iii. and xxxv. [37] See end of B. xxxvi.

[38] See end of B. ii. [39] See end of B. iv.

[40] A writer on Stones, of this name, is also mentioned by Plutarch and Stobæus, but no further particulars are known of him. He is mentioned in Chapter 11 of this Book.

[41] Mentioned also in Chapter 11 of this Book. A person of this name is quoted by the Scholiast on Apollonius Rhodius as the author of a work on Libya; from which he is supposed to have been a native of Africa.

[42] Beyond the mention made of him in Chapter 11 of this Book, as a contemporary of Pliny, no further particulars are known.

[43] A native of Patara in Lycia, who wrote a Description of the Earth, and a collection of the Oracles given at Delphi. See Chapter 11 of this Book.

[44] Beyond the mention made of him in Chapter 11 of this Book, nothing relative to this writer seems to be known.

[45] See end of B. ii.

[46] Mithridates VI., Eupator, or Dionysus, King of Pontus, and the great adversary of the Romans, commonly known as Mithridates the Great. His notes and Memoirs were brought to Rome by Pompey, who had them translated into Latin by his freedman Pompeius Lenæus. See end of B. xiv.: also B. vii. c. 24, B. xxiii. c. 77, B. xxv. cc. 3, 27, 79, B. xxxiii. c. 54, and Chapters 5 and 11 of the present Book.

[47] See end of B. xxi.

King Archelaüs,[48] Callistratus,[49] Democritus,[50] Ismenias,[51] Olympicus,[52] Alexander[53] Polyhistor, Apion,[54] Horus,[55] Zoroaster,[56] Zachalias.[57]

[48] See end of B. viii.

[49] From the mention made of him in Chapters 12 and 25 of this Book, we may conclude that he was a writer on Precious Stones.

[50] See end of B. ii.

[51] From the mention of him in Chapters 8 and 28 of this Book, he appears to have been a writer on Precious Stones.

[52] Probably the physician of Miletus, sometimes called Olympiacus, who, according to Galen, belonged to the sect of the Methodici, and lived in the first century after Christ. Galen speaks of him as "a frivolous person."

[53] See Cornelius Alexander, end of B. iii. [54] See end of B. xxx.

[55] See end of B. xxix. [56] See end of B. xviii.

[57] A native of Babylon, mentioned in Chapter 60 of this Book, as having dedicated a work, on Precious Stones, to King Mithridates.

# INDEX

## TO THE PRINCIPAL SUBJECTS MENTIONED IN THE TEXT AND NOTES.

**** *The Roman numerals refer to the Volume, the Arabic to the Page.*


Abaci, vi. 14.
Abaculi, vi. 382, 383.
Abantias, i. 317.
Abarimon, ii. 124.
Abdera, i. 304.
Abdomen, iii. 75.
Abella, i. 198.
Abellina, iii. 316.
Abellinates, i. 229.
Abies, iii. 155.
Abiga, v. 13, 14.
Abnoba, i. 328.
Abominations mentioned by Pliny, v. 302.
Abortion, ii. 141; iv. 285.
Abrotonum. iv. 334, 377, 378; v. 106, 232.
Abruzzo, i. 231.
Absarus, ii. 10.
Abscesses, remedies for, v. 201, 202.
Absinthites, iii. 259.
Absinthium, v. 106, 232–235; vi. 41. And *see* "Wormwood."
Absinthium marinum, v. 235.
Abstinence, from food, iii. 99—from drink, iii. 99.
Absurdities mentioned by Pliny, i. 405, 406; iv. 102, 105, 110, 178, 179, 190, 199, 200, 249, 250, 285, 316, 332, 373, 400, 414, 468, 482, 502; v. 2, 9, 30, 59, 61, 62, 63, 64, 65, 67, 68, 69, 70, 73, 89, 93, 95, 105, 106, 128, 188, 189, 218, 265, 266, 283, 289, 292, 301, 304, 305, 306, 307, 311, 313, 339, 340, 345, 346, 350, 355, 365, 366, 367, 384, 398, 410, 414, 435, 436, 452, 463, 464, 466, 467, 468, 522; vi. 4, 18, 21, 32, 39, 48, 205, 361, 434, 438, 441, 446, 447, 450, 456.
Absyrtides, i. 258, 266.
Absyrtus, i. 258, 266, 306; ii. 10.
Abydos, i. 306, 417, 489.
Abyla, i. 152, 384.
Acacia, v. 43, 44; vi. 341—Nilotica, iii. 183, 184.
Academia of Cicero, v. 473, 474.
Academy at Athens, iii. 104.
Acanos, iv. 398.
Acanthice mastiche, iv. 354.
Acanthion, v. 43.
Acanthis, ii. 542; v. 146, 147.
Acanthus, iv. 421.
Acanthyllis, ii. 515.
Acarnania described, i. 273.
Acatium, ii. 423.
Acerræ, i. 240.
Acetum (honey), iii. 14.
Achæmenis, v. 64, 159.
Achaia described, i. 280.
Acharne, vi. 60.
Acharus, ii. 157.
Achates (stone), vi. 388, 439, 440, 441.
Acheron, i. 209, 273.
Acherusia, i. 197, 273; ii. 3.
Achillæ, iii. 31.
Achilles, i. 339.
Achilleon, i. 477.
Achilleos, v. 94, 95.
Achilles, i. 294, 321, 331, 477; v. 94; vi. 211. Isle of, i. 381.
Achirite, vi. 410.
Achlis, ii. 263.
Acidula, v. 474.
Acinos, iv. 382.
Acinus, iii. 319. 320. 321.
Acipenser, ii. 398, 399.
Acmodæ, i. 351.
Acone, ii. 3.
Aconitum, ii. 293; v. 218–221.
Aconiti, vi. 278.
Acopa, iv. 491, 518; v. 411; vi. 58, 365.
Acopon, v. 226, 227.
Acopos, vi. 440.
Acorion, v. 143.
Acorn, iii. 345–348; v. 4.
Acorna, iv. 453.
Acoron, v. 142, 143.
Acqui, i. 156.
Acra Iapygia, i. 226.
Acragas, vi. 138, 139.
Acre, i. 434.
Acroceraunia, i. 262, 271.
Acrocorinthos, i. 279.
Acron, i. 204.
Actæa, v. 232.
Actæon, iii. 44.
Acte (place), i. 288.
Acte (plant), v. 198.
Actiniæ, iv. 254.
Actium, i. 273. Battle of, vi. 2.
Acynopos, iv. 349.
Ad Gallinas, iii. 336.
Adad, vi. 458.
Adamantis, v. 65.
Adamas, vi. 405, 407, 408.
Adarca, iv. 290; vi. 58.
Adda, i. 253.
Adder gem, v. 389.
Adelphides, iii. 176.
Adiabene described, ii. 27.
Adiantum, iv. 356, 415, 416, 417.
Adimantus, iii. 214.
Adipsatheon, v. 45.
Adipsos, iv. 399, 400.
Adornment of the person, iv. 389, 390.
Adonis, iv. 149. Gardens of, iv. 334.
Adonis (fish), ii. 406.
Adonium, iv. 334.
"Adorea," derivation of the word, iv. 7.

Adramytteos, i. 474.
Adria, i. 235, 245.
Adrian wines, iii. 242.
Adriatic Sea, i. 245, 250, 265.
Adrumetum, i. 391.
Adulitæ, ii. 95.
Adulteration, iii. 357.
Adynamon, iii. 256.
Ædemon, i. 380.
Ædui, i. 356.
Ægæ, i. 447.
Ægean Sea described, i. 309.
Ægialus, Vetulenus, iii. 234.
Ægilops (disease), iv. 358.
Ægilops (plant), iv. 358.
Ægimius, ii. 201.
Ægina, i. 312.
Æginetan brass, vi. 151, 152.
Ægipans, i. 378, 405, 406.
Ægithus, ii. 487, 551.
Ægocephalos, iii. 73.
Ægoceras, v. 74.
Ægolethron, iv. 341, 342.
Ægolios, ii. 539.
Ægophthalmos, vi. 459.
Ægospotamos, i. 308.
Ægyptilla, vi. 443.
Elana, i. 423.
Elian quoted, i. 141.
Elius, C., vi. 161.
Elius, Pætus Catus, iii. 275.
Ænaria, i. 214; v. 474.
Æneas, i. 194, 214.
Æolian Islands, i. 221.
Æolis described, i. 472.
Æolus, i. 221.
Aërolite, i. 63, 88, 89, 177; vi. 4, 38.
Aëromancy, v. 427.
Æs, vi. 68, 147–155.
Æsalon, ii. 551.
Æschines, the orator, ii. 174.
Æschines, the physician, v. 369.
Æschrion, ii. 357.
Æschylus, mentioned, ii. 555—quoted, v. 81.
Æschynomene, v. 67.
Æsculapian snake, v. 397.
Æsculapius, i. 285, 286; v. 390, 397, 445.
Æsculetum, iii. 355.
Æsculus, iii. 495.
Æserninus, Marcellus, iii. 106.
Æsop, the fabulist, vi. 338.
Æsopus, the actor, his extravagance, ii. 440, 441—vi. 287—his famous dish of birds, ii. 531, 532.
Æthiopia, i. 404; described, ii. 97—wonders of, ii. 129—animals of, ii. 278, 279. 281—trees of, iii. 193 194 sand of, vi. 326.
Æthiopian Sea, Islands of, ii. 105.
Æthiopis, v. 65, 159, 221.
Æthiops, ii. 101.
Ætites, ii. 484; v. 464; vi. 364, 446, 449, 456.
Aetion, vi. 169, 256.
Ætna, i. 217.
Ætolia described, i. 275.
Æx, i. 309.
Africa, described, i. 374—islands of, i. 402—discoveries in, ii. 98, 99—produces no stags, ii. 303—proprietors of, put to death by Nero, iv. 14, 15—its fruitfulness in wheat, iv. 35, 36.
African animals, decree respecting, ii. 274—by whom sent to Rome, ii. 275.
Africus, i. 73; iv. 116.
Affection, instances of, ii. 180, 181—shewn by serpents, ii. 252.
Aganippe, i. 291.
Agaric, iii. 353, 354; v. 120.
Agates, vi. 360, 388, 412, 418, 439, 440, 441.
Agatharchides, ii. 241.
Agathocles, the historian, i. 371.
Agathocles of Chios, ii. 356.
Agathyrsi, i. 335.
Age, of animals known from the teeth, iii. 60, 61—of trees, iii. 429, 430.
Agelades, vi. 168.
Ageraton, v. 221.
Agesander, vi. 320.
Agger, i. 204; vi. 347.
Agility, instances of, ii. 161.
Aglaophotis, v. 64.
Aglaosthenes, i. 373.
Aglaüs, his happiness, ii. 199.
Agnus castus, v. 26, 27, 28.
Agoracritus, vi. 310.
Agreement of mankind on certain points, ii. 236, 237.
Agriculture, surnames derived from, iv. 5—ancient taste for, 6—writers upon, 9, 10—maxims of the ancients upon, 16, 17, 18.
Agrifolia, v. 86.
Agrigentum, i. 218.
Agrion, iii. 121.
Agriopas, ii. 355.
Agrippa, M., i. 163, 164, 268; ii. 142. 143—vi. 175, 233, 347, 378, 480.
Agrippæ, ii. 142.
Agrippina, ii. 149, 155, 510, 523; vi. 130, 302—her memoirs, ii. 239—poisons Claudius, iv. 428.
Agrippinas, the two, their characters, ii. 143.
Ahenobarbus, C. Domitius, iii. 438, 439.
Aigleucos, iii. 249, 250.
Air, i. 65.
Aizoum, iv. 58; v. 143, 144.
Ajax, i. 477—death of, iv. 337.
Ajmere, ii. 47.
Alabanda, i. 464.
Alabandic stone, vi. 330, 331.
Alabaster, vi. 329—boxes for unguents, ii. 435; iii. 166; iv. 310.
Alabastrites, vi. 329, 330.
Alabastritis, vi. 440.
Alabastron, i. 417.
Alabeta, i. 410.
Alauda, iii. 43.
Alba Longa, i. 198.
Alban Mount, i. 205.
Alban wine, iii. 240, 241; iv. 470.
Albania, ii. 20, 124.
Albertus Magnus quoted, ii. 255; vi. 361, 431.
Albinos, ii. 124.
Albion, i. 350.
Albis, i. 348.
Albucus, iv. 360.
Albugo, iv. 222.
Albula, i. 191, 236; v. 475.
Alburnum, iii. 412.
Alcæus, iv. 456.
Alcala de Henares, i. 169.
Alcamenes, vi. 168, 178, 310.
Alces, v. 224.
Alcibiades, iii. 272; vi. 159, 186, 316.
Alcibium, v. 230.
Alcima, v. 202, 203.
Alcippe, ii. 137.
Alcman, death of, iii. 40.
Alcmena, v. 298.
Alcon, v. 379; vi. 206.
Alcyonidium ficus, iii. 210, 211.
Alder, v. 32.
Alec, ii. 403.
Alectoria, vi. 440.
Alectoroslophos, v. 230, 231.
Alex, v. 508, 509.
Alexander the Great, i. 104, 225, 298, 419, 434, 447, 448, 465, 469, 470, 476, 477, 485, 489, 490; ii. 27, 32, 33, 35, 48, 51, 58, 59, 71, 72, 81, 173; iii. 128, 238, 239, 296 v. 470; vi. 174, 175, 176, 258, 259, 264, 349—his letters, ii. 115—his edict as to his portraits, 184—his

Indian expedition, 39, 40, 41, 360, 361; iii. 138, 211, 212; vi. 27.
Alexander, king of Epirus, i. 224, 225.
Alexander, Cornelius, i. 270.
Alexandria, i. 419—plan of, ii. 184—foundation of, iii. 186.
Alexipharmacon, iv. 373.
Alexis, vi. 168
Alga, iii. 209, 210.
Alga rufa, v. 232.
Alica, iv. 28, 41, 42, 43, 195, 443.
Alicant, i. 164.
Aliments, influence of, upon the disposition, iv. 435, 436.
Alinda, i. 465.
Alisma, v. 129, 130.
Alites, ii. 495.
Alkaline ashes, iv. 459, 460.
Alkanet, iii. 162; iv. 355, 409; v. 238.
Alkekengi, iv. 384.
Alluvion, i. 117—of the Nile, iii. 186.
Almaden, mines of, vi. 122.
Almanacks, iii. 480.
Almandine, vi. 420.
Almonds, iii. 316, 317; iv. 512, 513.
Aloe, v. 222, 223, 224.
Alopecuros, iv. 357.
Alopecy, remedies for, iv. 223; v. 408, 409, 534, 535; vi. 29.
Alpheus, i. 281.
Alphius, Lake, v. 475.
Alps, nations of, i. 254—passes of, i. 247.
Alsine, v. 224, 225.
Altercangenum, v. 91.
Althæa, iv. 286.
Altinum, i. 249.
Alum, ii. 435; vi. 295, 296.
Alum (plants), iv. 176; v. 231.
Alumen, vi. 294–298.
Alunite, vi. 357.
Alunogen, vi. 444.
Aluntium, iii. 248.
Alypon, v. 224.
Alysson, v. 39.
Amadue, vi. 360.
Amalchian Sea, i. 341, 342.
Amalthæa, v. 320.
Amanus, i. 458, 447.
Amaracinum, iii. 161.
Amaracus, iv. 334, 335, 378, 379, 383.
Amaranth, iv. 327.
Amardi, ii. 34.
Amasia, ii. 6.
Amasis, King, i. 416; iv. 134; vi. 295.
Amastris, ii. 4.
Amazons, i. 468, 470; ii. 15, 23, 24.
Amber, i. 266, 344, 351, 352; vi. 397–404.
Ambracia, vi. 252.
Ambracian Gulf, i. 273.
Ambrosia, v. 106, 107, 226, 236.
Ambrysus, i. 277.
Ambula, iv. 234.
Ameria, i. 238, 241—brooms of, v. 29—willow of, v. 26.
Amethyst, vi. 433.
Amethystine tint, ii. 449.
Amethystos, vi. 432, 433, 434.
Amia, ii. 386.
Amianthus, vi. 360, 444.
Aminean grape, iii. 322, 323.
Amisius, i. 348.
Amisus, ii. 5.
Ammi, iv. 263, 264.
Ammianus Marcellinus quoted, i. 422; ii. 73.
Ammoniac gum, iii. 144, 145; v. 11.
Ammonites, vi. 451.
Amometus, ii. 115.
Amomis, iii. 123.
Amomum, iii. 122.
Amorgos, i. 322.
Amphilitis, vi. 299.
Ampeloleuce, iv. 466, 467.
Ampelome, ii. 89.
Ampeloprason, v. 55.
Ampelos agria, v. 232.
Ampelos Chironia, v. 91.
Ampelusia, i. 374.
Amphidanes, vi. 442.
Amphilochus of Athens, ii. 356.
Amphimalla, ii. 335.
Amphion, ii. 231; vi. 318, 319.
Amphipolis, i. 301, 302; ii. 498.
Amphisbæna, ii. 285; v. 463.
Amphissa, i. 277.
Amphistratus, vi. 320.
Amphitheatre, of Curio, vi. 350, 351, 352—of Nero, iii. 419.
Amphitheatre, awnings for, iv. 139.
Amphitus, ii. 12.
Amphora, vi. 396.
Ampsaga, i. 387.
Amulets. *See* "Magic."
Amurca of olives, iii. 280, 281, 286; iv. 486, 487.
Amyclæ, i. 194, 283.
Amygdalinum, iii. 288, 289.
Amygdalites, v. 180.
Amylum, iv. 29, 30, 446.
Amyris, iii. 129, 138.
Anabasis, v. 166, 203, 204.
Anacampseros, v. 67.
Anacreon, his death, ii. 142—mentioned, ii. 242—quoted, ii. 200.
Anactoria, i. 273.
Anagallis, v. 136, 137, 138.
Anagyros, v. 226, 227.
Anaitis, vi. 106.
Anaitites, vi. 408.
Anancitis, vi. 461.
Anaphe, i. 323.
Anarrhinon, v. 131.
Anataria, ii. 482.
Anatomy, ignorance of, v. 277.
Anaxagoras, i. 88, 89.
Anaxapolis, ii. 356.
Anaxarchus, his fortitude, ii. 164.
Anaxilaüs, iv. 205; vi. 292.
Anaxilaüs of Larissa, iv. 387.
Anaximander, i. 26, 112, 149, 372.
Anaximenes, i. 109; iii. 157.
Anazarbus, i. 149.
Ancæus, vi. 261, 262, 278.
Anchiale, i. 447.
Anchialum, i. 3 6.
Anchors, invention of, ii. 235.
Anchusa, iv. 355, 409; v. 238.
Ancona, i. 236, 237.
Ancus Martius, v. 487, 506.
Ancyra, i. 491, 492.
Andaræ, ii. 45.
Andrachle, iii. 204; v. 144, 145.
Andrachne, iii. 204.
Andreas, iv. 302.
Androbius, vi. 278.
Androclus and the Lion, ii. 271.
Androcydes, his letter to Alexander, iii. 238.
Androdamas, vi. 363, 440.
Androgyni, ii. 126, 136.
Andromeda, i. 426, 479; ii. 99, 364 — the dwarf, ii. 157.
Andropogon, iii. 144.
Andros, i. 318.
Androsaces, v. 225.
Androssemon, v. 225, 226.
Androtion, ii. 357.
Anemone, iv. 336, 379.
Angel-fish, ii. 380.
Anger, iii. 80.
Angerona, i. 202.
Angora, i. 492.

Animals, the largest, in India, ii. 129—wild, their instinct, 248—their supposed dread of man, 249—medical remedies first indicated by, 291-294—prognostics of danger derived from, 294, 295—nations exterminated by, 295—in a half-wild state, 346 — that are partly tamed only, 350—places where certain, are not found, 352, 353 — which injure strangers only, 353, 354—which injure the natives only, 354—the largest, found in the sea, 358—oviparous, 532—terrestrial, that are oviparous, 540—terrestrial, the generation of, 540-544—position of, in the uterus, 544—the origin of which is unknown, 544 — born of beings that are not born themselves, 546 — born themselves but not reproductive, 546—that are of neither sex, 546—the senses of, 546, 547 — the feeding of, 548—that live on poisons, 548 — the drinking of, 550—the antipathies of, 550, 551—the friendships of, 551, 552—the sleep of, 552, 553—certain, subject to dreams, 553—that are found in fire, iii. 42—that live for a day only, 42 — characteristics of, limb by limb, 43 — horns of, 44, 45, 46—that have no eyelids, 54, 55—that have not teeth on each side of the mouth, 56 — that have hollow teeth, 56—their age estimated from their teeth, 60—in which the neck is rigid, 63—which have the largest heart, 65 — that have two hearts, 65 — which have the largest lungs, 67—which have the smallest lungs, 67—that are destitute of gall, 68—that have no belly, 71—the only ones that vomit, 71—that have no kidneys, 73—that have no bladder, 74—that have suet, 76—that have marrow, 76—that have no bones, 77—that have no nerves, 77 78—that have no arteries or veins, 78—the blood of which coagulates, 78—the blood of which does not coagulate, 79 — of which the blood is thickest, 79—of which the blood is thinnest, 79—that are destitute of blood at certain times, 79, 80—the feet of, 91—the tails of, 92—the voices of, 92, 93—that feed upon poison, 98 — their modes of defence, iv. 2—none that are odoriferous, 323—superstitious usages relative to, v. 366, 367—diseases of, vi. 57, 58.
Anio, i. 234.
Anise, iv. 271, 272, 273.
Anna Perenna, vi. 262.
Anonis, iv. 355.
Anonymos, v. 227.
Antæus, the giant, i. 375.
Antæus, the physician, iii. 157.
Antandros, i. 475—fall of the baths at, iii. 426.
Antaphrodisiacs, v. 189, 467, 468—vi. 57.
Antelope, iii. 44.
Antelope oryx, ii. 346.
Antemnæ, i. 205.
Antenor, i. 252.
Anteros, vi. 434.
Anthalium, iv. 348, 349, 383.
Anthedon, i. 425.
Anthemis, iv. 358, 411, 412; v. 186.
Anthelmintics, v. 246.
Anthericos, iv. 360.
Anthias, the fish, how taken, iv. 273, 274.
Anthophoros, v. 35.
Anthracites, vi. 364.
Anthracitis, vi. 423, 460.
Anthriscum, iv. 423.
Anthropophagi, i. 335; ii. 36, 104, 124.
Anthus, ii. 522, 551.
Anthyllis, v. 184.
Anthyllium, iv. 383; v. 184.
Antias, i. 148.
Antibes, i. 178.
Anticlides, i. 373.
Anticyra, i. 277—v. 98.
Anticyricon, iv. 444, 445.
Antidote, universal, iv. 299, 300.
Antidotus, vi. 275.
Antigenes, i. 499.
Antigonus, vi. 145.
Antigonus of Cymæ, ii. 356.
Antilibanus, i. 435.
Antimony, vi. 115, 116.
Antiochia, i. 437, 444.
Antiochus, ii. 146; iv. 300; v. 372; the marvellous cure of, ii. 182.
Antipater, Cælius, i. 147.
Antipater of Sidon, ii. 269.
Antipater of Tarsus, ii. 355.
Antipathes (the stone), vi. 442.
Antipathies, and sympathies between aquatic animals, ii. 475, 476—of animals, ii. 550, 551.
Antipathy, iv. 206, 217, 237, 375; v. 1, 2; vi. 12, 13, 50, 51, 407, 442.
Antiphilus, vi. 269, 278.
Antipodes, i. 94 to 97.
Antipolis, i. 178.
Antiquity of the art of Painting, vi. 228, 229, 230.
Antirrhinum, v. 131.
Antirrhium, i. 275.
Antium, i. 193.
Antispodium, vi. 203, 204.
Antonia, who never expectorated, ii. 160.
Antonines, the, i. 179.
Antony, Marc, i. 242, 439, 440; iv. 309, 310; vi. 2, 92, 173, 180, 416—harnesses lions, ii. 270 — his inebriety, iii. 273.
Ants, venomous, ii. 295—description of, iii. 37, 38—their reproduction, 37 — their habits, 38—winged, 38—gigantic size of those of India, 38 — excavate gold, 39; vi. 99, 442, 443.
Anubis, i. 418; vi. 128.
Anularian white, vi. 244.
Aornos, i. 271.
Aorsi, ii. 32.
Aosta, i. 247.
Apamea, i. 479; ii. 78—wine of, iii. 246.
Apamia, i. 444.
Aparine, v. 227, 228
Ἀπαθεῖς, ii. 160.
Apatite, vi. 327.
Apes, ii. 95, 100, 132—white, 281 — described, 347 — their shrewdness, 347—how taken, 347—affection for their young, 347—their teeth, iii. 58 — their resemblance to man, 86, 87.
Apeliotes, i. 73; iv. 116.
Apellas, vi. 185.
Apelles, artist, ii. 184; vi. 245, 256 to 263, 303.
Apelles, physician, v. 369.
Apennines, i. 186.
Aphaca, v. 230.
Aphace, iv. 349, 350.

Apharce, iii. 204.
Aphides, iii. 179.
Aphrodisiaca, vi. 443.
Aphrodisiacs, iv. 252; v. 189, 365, 366, 467, 468; vi. 57.
Aphrodisius, the river, v. 475.
Aphrodite, i. 481; ii. 14.
Aphronitrum, v. 515.
Aphus, v. 508.
Apiana, iii. 224.
Apiastrum, iv. 247.
Apiatæ, iii. 196.
Apicius, M., the epicure, ii. 344, 403; iv. 185.
Apidanus, i. 295.
Apiolæ, i. 207.
Apion, i. 8; v. 470.
Apios Ischias, v. 180. 181.
Apis (the city), i. 402—the Egyptian deity, ii. 330, 331.
Apocynum, v. 40.
Apodes, ii. 521; iii. 90.
Apographon, vi. 273.
Apolecti, ii. 386.
Apollinaris, v. 91.
Apollo, i. 462, 473, 475.
Apollobeches, v. 424.
Apollodorus, i. 371; ii. 182 iii. 100, 247; iv. 301; vi. 145, 185.
Apollodorus of Lemnos, ii. 356.
Apollonia, i. 226, 338, 396.
Apollonides, ii. 241.
Apollonius of Pergamus, ii. 356.
Apollonius Mus, v. 368.
Apollonius of Pitanæ, v. 420.
Apollonius Tyanæus, ii. 6, 7.
Apothecæ, iii. 254, 263.
Appendix, v. 46.
Appi Forum, i. 201.
Appiades, vi. 318.
Appianum, vi. 243, 244.
Appius Claudius, vi. 227.
Apple of the earth, v. 116, 117.
Apples, iii. 298, 299, 302, 303; iv. 496, 497—smell of, ii. 132.
Apronia, iv. 468.
Aproxis, v. 63.
Aps, i. 254.
Apsides, i. 42.
Apsinthe, iii. 259.
Apsyctos, vi. 443.
Apua, v 508.
Apuleius quoted, i. 122; v. 158; vi. 175.
Apulia, i. 225, 227.
Apuscidanus, Lake, v. 479.
Apyrenum, iii. 200.
Aqua Marcia, vi. 353.
Aqua Tepula, vi. 353.
Aquamarine, vi. 414.
Aquatic animals, distribution of, into species, ii. 379, 380—their parturitions, 380, 381—their antipathies and sympathies, 475, 476—prognostics derived from, iv. 123, 124.
Aqueducts, v. 487, 488—at Rome, vi. 352, 353, 354.
Aquifolia, v. 45, 47, 239.
Aquila, i. 148.
Aquileia, i. 209.
Aquilius, vi. 92.
Aquilo, i. 74, 77; iv. 115.
Aquitanica described, i. 357.
Arabia, described, i. 422—ii. 82—its spices, iii. 123—Roman expedition against, 125—why called "Happy," 136, 137—its perfumes, 138—its rivers, vi. 5.
Arabian Gulf, ii. 66.
Arabian stone, vi. 365, 366.
Arabian thorn, v. 43.
Arabica, vi. 442.
Arabis, ii. 134, 360.
Arabs, ii. 90, 91.
Arachidna, iv. 349.
Arachne, i. 472—ii. 224.
Arachosia, ii. 50, 57.
Aracos, iv. 349.
Aracynthus, i. 276.
Arados, i. 479.
Aral, Sea of, ii. 32.
Araneus, vi. 61.
Arar, i. 175.
Aratus, iv. 128.
Arausio, i. 178.
Araxes, ii. 18.
Araxus, i. 311.
Arbalo, victory at, iii. 19.
Arbela, i. 104; ii. 27, 71.
Arbute-tree, iii. 320, 321.
Arbutus, iii. 320; iv. 516.
Arcadia, described, i. 285—asses of, ii. 323—wines of, iii. 282—its simples, v. 116.
Arcesilas, vi. 281.
Arcesilaus, vi. 285, 322.
Archagathus, v. 375.
Archebion, iv. 410, 411.
Archelaüs, king, ii. 357.
Archelaüs, the poet, v. 368.
Archezostis, iv. 466, 467.
Archibius, iv. 128.
Archidemus, iii. 158.
Archilochus, ii. 174.
Archimachus, ii. 243.
Archimedes, i. 149; ii. 183.
Architecture, the orders of, vi. 374, 375.
Archytas, ii. 356.
Arcion, v. 124, 164.
Arconnesus, i. 484.
Arction, v. 228.
Arcturum, v. 228.
Arcturus, iv. 107.
Ardea, i. 193—paintings at, vi. 270.
Areca catechu, v. 66.
Areiopagus, ii. 227.
Arelate, i. 178.
Arellius, vi. 271.
Arellius Fuscus, vi. 137.
Arescon, ii. 138.
Arescusa, ii. 138.
Arethusa, i. 131, 217, 291, 317; v. 493.
Arezzo, i. 189.
Argæus, ii. 7.
Arganthonius, ii. 200, 201.
Argema, iv. 222.
Argemo, v. 188.
Argemone, iv. 379.
Argemonia, v. 119, 120.
Argentaria, iii. 454; vi. 301.
Argentarii, iv. 307; vi. 232.
Argentarium, vi. 214.
Argilla, iii. 453.
Arginussæ, i. 488.
Argippæi, ii. 15.
Argo, the ship, iii. 203.
Argolis described, i. 284
Argonauts, i. 250; ii. 10.
Argos, Amphilochian, i. 174—Hippian, i. 228, 284—Inachian or Dipsian, i. 284, 285.
Argyrodamas, vi. 441.
Argyrippa, i. 228.
Argyritis, vi. 117.
Aria, ii. 23.
Ariadne, vi. 316.
Ariana described, ii. 56, 58—trees of, iii. 115.
Arianis, v. 65.
Aricia, i. 142, 196.
Ariena, iii. 110.
Arii, ii. 50.
Arimaspi, ii. 34, 123, 124, 336.
Ariminum, i. 241.
Arimphæi, ii. 15, 24.
Arinca, iv. 31, 35, 441.
Arion, the story of, ii. 374.
Arisaros, v. 60.
Arisbe, i. 487.
Aristæus, the story of, iii. 23; iv. 344.
Aristagoras, vi. 395.
Aristander, ii. 357.
Aristarchus of Sicyon, i. 499.
Aristarete, vi. 281.
Aristeas, ii. 211, 241.
Aristides, (artist), vi. 168, 178, 255, 263, 264, 272.

Aristides of Miletus, i. 372.
Aristis, v. 250.
Aristocreon, i. 499.
Aristocritus, i. 378.
Aristodemus, vi. 185.
Aristogenes, v. 420.
Aristogiton, vi. 155, 177, 179.
Aristogiton, the author, iv. 272.
Aristolaus, vi. 277.
Aristolochia, v. 116, 117, 118.
Aristomachus, iii. 214.
Aristomachus of Soli, iii. 100.
Aristomenes, his heart covered with hair, iii. 66—his remarkable escape, 66.
Aristophanes, the comic writer, quoted, iv. 319—his joke upon Euripides, 423.
Aristophanes of Miletus, ii. 356.
Ariston, vi. 139, 185, 268.
Aristonidas, vi. 206, 281.
Aristophon, vi. 278.
Aristotle, his birth-place, i. 301—his enquiries into Natural History, by order of Alexander, ii. 265—quoted, i. 29, 57, 70, 73, 81, 90, 91, 112, 113, 128, 129, 135, 318, 319, 485; ii. 146, 174; iii. 92, 96; v. 470; vi. 287.
Aristratus, vi. 268.
Aries, i. 178.
Armenia described, ii. 17.
Armenian bole, vi. 243.
Armenium, vi. 243.
Arrhenochalybes, ii. 9, 21.
Armentarius, ii. 148.
Armillæ, ii. 171.
Arms, various, when first used, ii. 227, 228.
Arms (of the body) described, iii. 86—peculiarities in, 86.
Aromatic wines, iii. 258, 259.
Aromatites, iii. 253, 258, 259.
Aromatitis, vi. 442.
Aros, ii. 299, 300.
Arosapes, ii. 58.
Aroteres, i. 306.
Arpinum, i. 199.
Arraceni, ii. 88.
Arrenogonon, v. 191.
Arretium, i. 189.
Arrhenicum, vi. 220, 221.
Arrian, his autograph, vi. 336.
Arrows, iii. 404—how poisoned, iii. 97, 98.
Arrugiæ, vi. 101.
Arruntius, i. 269.
Arsenic, vi. 220, 221.
Arsenogonon, v. 213, 214.
Arsinoë, vi. 427—city of, i. 396; ii. 93—temple of, vi. 209.
Arsinoïtes, i. 409.
Artabrum, i. 363.
Artacoana, ii. 58.
Artaphernes, vi. 248.
Artaxata, ii. 19.
Artemidorus, i. 150.
Artemis, i. 463, 468, 473.
Artemisia (plant), v. 106, 226, 236.
Artemisia (queen), v. 106; vi. 316, 317.
Artemisium, i 317.
Artemita, i. 274; ii. 71.
Artemon (the artist), vi. 278.
Artemon (the writer), v. 368.
Artemon, his resemblance to Antiochus, ii. 146.
Arteriace, iv. 279, 509, 510, 511.
Arterial pulsation, iii. 78.
Arteries, iii. 78.
Artery, tracheal, iii. 62.
Articulation, ii. 155; iii. 62.
Artichoke, iv. 190, 299, 353.
Artificial wines, iii. 256–260; iv. 477, 478.
Artists in silver, vi. 138, 139, 140.
Artolaganus, iv. 39.
Arts, persons who have excelled in the, ii. 182, 183
Arum, iv. 169; v. 57, 58, 59.
Aruspices, iii 69, 336.
Arval priesthood, iv. 3.
As, vi. 149.
Asafœtida, iv. 144, 146, 432.
Asana, i. 381.
Asarotos Œcos, vi. 376, 377.
Asarubas, vi. 467.
Asarum, iii. 121, 122; iv. 319, 369.
Asbestus, iv. 136, 137; vi. 360, 442.
Ascalabotes, v. 403.
Ascalon, i. 425.
Ascitæ, ii. 97.
Asclepias, v. 229.
Asclepiades, ii. 183, 242—his medical practice, v. 156, 157, 158.
Asclepiades of Thrace, ii. 242.
Asclepiodorus, vi. 267, 303.
Asconius Pedianus, ii. 240.
Asculum, i. 236.
Ascyroïdes, v. 229, 230.
Ascyron, v. 225, 226, 229, 230.
Aselli, iv. 121.
Asellus, ii. 396, 399.
Ash (tree), iii. 365, 366; v. 21.
Ashdod, i. 425.
Ashes, vi. 283, 284—used in agriculture, iii. 455, 456.
Asia, islands of, i. 479—trees of, iii. 201.
Asio, ii. 504.
Asisium, i. 238.
Asmagi, ii. 47.
Asp, ii. 285, 286, 552; v. 394.
Aspalathos, iii. 146, 147; v. 45.
Asparagus, iv. 188, 189, 190, 245, 350, 405.
Aspendum, i. 452.
Asperugo, v. 193.
Asphalt, vi. 293.
Asphaltites, Lake, i. 132, 429; ii. 152.
Asphodel, i. 276; iv. 359, 360, 417, 418.
Aspisatis, vi. 442.
Asplenon, v. 228, 229.
Asprenas, vi. 288.
Asprenates, v. 443.
Ass, v. 116—wild, ii. 263, 297—its generation, 322, 323—best varieties of, 323—its habits, 324—its value, 324—eaten as food, 324—Indian, iii. 46—its bones used for flutes, 77—its milk, v. 340—baths of its milk, iii. 84.
Assabinus, the god, iii. 128, 139.
Assyria, i. 424.
Assisi, i. 238.
Astaceni, i. 139.
Astaci, ii. 424.
Astaphis, iv. 463, 464—agria, iv. 464, 465.
Astapus, i. 411.
Astarte, v. 485; vi. 9.
Aster, v. 229.
Astercum, iv. 407.
Asteria, vi. 437.
Asthma, remedies for, v. 344.
Astobores, i. 411.
Astomi, ii. 131.
Astorga, i. 172.
Astosapes, i. 411.
Astragalizontes, vi. 172.
Astragals, vi. 375.
Astragalus, v. 170, 171.
Astragus, ii. 134.
Astrapæa, vi. 460.
Astrion, vi. 437.
Astriotes, vi. 437.
Astrobolos, vi. 438.
Astrology, i. 25—invention of, ii. 230.
Astromancy, v. 427.
Astura, i. 193.

Asturcones, ii. 322.
Asturia, i. 214.
Astynomus, i. 373.
Astypalæa, i. 323.
Asyla, v. 137.
Atabulus, the wind, iii. 523.
Ateius, L., i. 269.
Ateius Prætextatus. i. 370.
Atergatis, i. 426, 439.
Aternus, i. 231.
Ateste, i. 252.
Athamanes, i. 275.
Athamantium, iv. 295, 296.
Athanatus, ii. 161.
Athenæus quoted, i. 447.
Athenion, vi. 276.
Athenis, vi. 308.
Athenodorus, vi. 320.
Athens, i. 289.
Athletes, iv. 504.
Athletic exercises, iii. 271.
Athos, i. 300, 324—inhabitants of, ii. 132.
Atina, i. 232.
Atinas, C. Pompeius, iv. 394.
Atinum, i. 290.
Atizoë, vi. 442.
Atlantes, i. 405.
Atlantic Ocean, i. 210—islands of, i. 367.
Atlantis, i. 120; ii. 106.
Atlas, Mount, described, i. 377, 378, 381, 382, 383—trees of, iii. 194.
Atomic theory of Plato, iv. 436.
Atractylis, iv. 350, 353.
Atramentum, v. 2, 3; vi. 240, 241, 242.
Atramentum sutorium, vi. 200, 201, 202.
Atramitæ, ii. 87; iii. 124.
Atrebates, i. 354.
Atria, i. 245.
Atriplex, iv. 282, 283.
Atropatene, ii. 27.
Attacori, i. 337; ii. 37.
Attagen, ii. 528, 529.
Attagenæ, ii. 353.
Attalic vestments, ii. 337.
Attalus, king, ii. 356; vi. 136, 145, 264.
Attelebi, v. 403.
Attica described, i. 288.
Atticus, Julius, iii. 275.
Atticus, Pomponius, i. 273; ii. 240; vi. 226.
Attilus, ii. 383.
Attius, L., iv. 126.
Attus, Navius, iii. 310, 311; vi. 157.
Auchetæ, i. 335.
Aufidius, M., vi. 228.
Augetis, vi. 402.
Augury, ii. 294, 487, 493, 494, 495—from fish, ii. 391—from eggs, ii. 535.
Augustus, the Emperor, i. 58, 61, 184, 198, 256, 274; ii. 82, 237; iii. 68, 69, 342; iv. 51, 181, 182, 395; v. 108; vi. 106, 233, 262, 387, 389—an author, i. 268—his union with Livia unprolific, ii. 149—his misfortunes, ii. 195—the colour of his eyes, iii. 51—his temple, iii. 140—his taste in wines, iii. 244, 245.
Augustite, vi. 327.
Augylæ, i. 392, 393, 405.
Aulocrenæ, i. 461.
Aulon, i. 281.
Aulus Gellius quoted, i. 110.
Aurata, ii. 397.
Aurelian, the Emperor, i. 445.
Aurelius, Marcus, iv. 515.
Aurichalcum, vi. 148, 435.
Auripigmentum, vi. 104, 105.
Aurora Borealis, i. 60, 63.
Ausones, i. 222.
Auster, i. 73.
Autololes, i. 379, 384.
Autolycus, vi. 182.
Autumn, iv. 107, 108.
Aventurine, vi. 423, 459.
Avernus, Lake, i. 196; v. 479.
Avianius Evander, vi. 317.
Aviaries, the inventor of, ii. 531.
Awnings for theatres, iv. 138, 139.
Axenus, i. 326; ii. 1.
Axinomancy, v. 427; vi. 362.
Axis, the wild beast, ii. 280, 281.
Axungia, v. 324.
Azanian Sea, ii. 67, 95.
Azotus, i. 425.

B.

Babba, i. 376.
Babel, tower of, i. 444.
Baboon, ii. 135, 348.
Babylon, ii. 72; vi. 294.
Babylonia, fertility of, iv. 59, 61.
Babylonian vestments, ii. 337, 338.
Babylonians, their astronomical observations, ii. 221.
Babytace, ii. 79.
Bacca, iii. 319, 320.
Bacchar, iii. 121; iv. 318, 319, 368, 369.
Bacchiadæ, vi. 283.
Bacchius of Miletus, ii. 357.
Bacchus, ii. 399—his birth, ii. 50—origin of the name, ii. 219.
Bacchus (fish), vi. 33.
Bactra, i. 32; ii. 30.
Bactriana, v. 500, 501; trees of, iii. 116.
Bactrus, ii. 32.
Badger, ii. 310.
Bætica, i. 154.
Bætis, i. 157.
Bæton, i. 498.
Bætyli, vi. 438.
Bagoüs, an eunuch, iii. 174.
Bagrada, i. 389; ii. 261.
Bahr-el-Abied, i. 411.
Baiæ, i. 196; v. 472.
Bakers, when first introduced at Rome, iv. 40, 41.
Balæna, ii. 359, 361, 365, 368, 369.
Balaklava, i. 334.
Balani, iii. 177.
Balanites, vi. 443.
Balanus, iii. 182; vi. 61—oil of, iii. 162.
Balas ruby, vi. 421.
Balaustium, iv. 500, 501.
Balbus, Cornelius, i. 399, 400; ii. 190; vi. 329.
Balbusard, ii. 482.
Baldness, natural, iii. 47.
Balearic Islands, described, i. 211—infestedwith hares, ii. 349—wines of, iii. 244.
Balista, first used, ii. 228.
Balkh, ii. 30
Ball, game of, ii. 232.
Ballis, v. 82.
Ballotes, v. 236.
Balm, of Gilead, iii. 147, 396—of Mecca, iii. 147; iv. 492.
Balsamodes, iii. 141.
Balsamum, iii. 147; 151, 396.
Baltis, i. 342.
Baltic, islands of the, i. 341.
Bamberg MS. of the text of Pliny, vi. 1, 190, 465, 466.
Bambos arundinacea, ii. 129.
Bambotus, i. 380.
Bambyx, i. 439.
Banasa, i. 377.
Bandoline, v. 20.
Bankers, iv. 307.
Banquets in trees, iii. 105.
Banquetting-couches, ii. 448.
Bantams, ii. 536.
Banyan tree, ii. 129; iii. 109, 110.
Baobab tree, iii. 429.
Baptes, vi. 443.
Barbers, early employment of, ii. 236.

Barberry, v. 46.
Barcelona, i. 167.
Barcino, i. 167.
Bargyla, i. 463.
Barippe, vi. 443.
Bark of trees, ii. 117, 354, 355, 393.
Barley, iv. 27, 28, 30, 31, 445, 446.
Baroptenus, vi. 443.
Barrenness, ii. 149.
Barter, vi. 71.
Basanite, vi. 125, 328.
Basil, iv. 249, 250.
Basilia, i. 342; vi. 408.
Basilica, vi. 227, 346.
Basilis, ii. 116.
Basilisk, ii. 282, 394.
Bassus, Calpurnius, iii. 437.
Bassus, Julius, iv. 304.
Bassus, Q. Lecanius, v. 154.
Bastard, asarum, v. 35—dittany, v. 172—saffron, iv. 350.
Basternæ, i. 330, 348.
Bat, ii. 540; v. 400—used as a countercharm, v. 400.
Batavi, i. 355.
Bath-room, sprinkled with unguents, iii. 168.
Baths at Rome, vi. 353, 354.
Batis, vi. 33.
Batis, iv. 347, 382.
Baton, vi. 187.
Batrachion, v. 148, 149, 150, 258.
Batrachitis, vi. 443.
Batrachus, vi. 61, 322.
Battering-ram, ii. 229.
Battles, the first, ii. 227.
Bauli, i. 196.
Bdellium, iii. 116.
Beaks of ships, ii. 235.
Beans, iv. 44, 45, 57, 447, 448.
Bears, and their cubs, ii. 305, 306, 307—in the Circus, ii. 307—have the hardest skulls, iii. 47—their genitals, iii. 92.
Bears'-grease, iv. 366; v. 334—used for the hair, ii. 306.
Beaver, ii. 297, 298—vi. 13, 14, 416.
Bebriacum, ii. 529.
Bebryces, i. 478.
Bechion, v. 164.
Beckmann's "History of Inventions" quoted, iii. 354; iv. 33, 37; v. 38, 39, 109, 193, 264, 323, 342, 486, 487, 502, 504, 506, 512, 513, 514, 515, 516, 519; vi. 4, 5, 32, 97, 98, 99, 106, 109, 111, 114, 124, 141, 142, 143, 147, 189, 191, 195, 198, 200, 207, 208, 212, 213, 214, 218, 238, 240, 241, 242, 243, 244, 295, 301, 330, 357, 369, 370, 375, 379, 380, 381, 382, 398, 409, 410, 420, 422, 424, 425, 430, 432, 463.
Bedeguar, iv. 366; v. 48, 84.
Bedouins, ii. 86.
Bedrooms, quinces hung up in, iii. 293—plants in, iv. 259.
Bee-bread, iv. 434.
Beech, iii. 346, 355; v. 7.
Bee-eater, ii. 516.
Bee-glue, iii. 6.
Beehives, iv. 344.
Beer, iii. 256, 274; iv. 26, 456.
Bees, iii. 5—their works, 5–6—honey, 10, 11, 12, 13—their wax, 6, 7—their fondness for the olive, 7—not injurious to trees, 7—persons who have made them their study, 8—their mode of working, 8–14—their habits, 15, 16—reproduction of, 16, 17; iv. 344—swarming of, iii. 17, 18, 19—their government, 18—omens afforded by, 19—various kinds of, 20—the king-bee, 10, 16–21—their sting, 20; iv. 343—their aversions, iii. 21—what creatures are hostile to them, 21—their diseases, 21, 22; iv. 340—things that are noxious to them, iii. 22—olive oil fatal to them, 22—how to keep them to the hive, 23—how to renew the swarm, 23, 24—plants for, iv. 339, 340—their food, 340, 341—their hives, 344—influence of hunger upon them, 345.
Beet, iv. 183, 184, 232, 233.
Beetles, iii. 33; v. 418, 419, 436.
Behen nut, or ben, iii. 142, 143, 182, 327, 495.
Belemnites, vi. 398, 452.
Beli oculus, vi. 443.
Belladonna, v. 137.
Bellerophon, ii. 229; iii. 193.
Bellio, iv. 328.
Bellis, v. 162.
Bells, i. 198.
Belly, iii. 71, 72—animals with none, iii. 71—diseases of the, v. 169, 170.
Belluno, i. 252.
Belone, ii. 466; vi. 61.
Belunum, i. 252.
Belus (the divinity), ii. 72.
Belus (the river), vi. 379.
Belus (the stone), vi. 443.
Beneventum, i. 229.
Berecynthus, i. 164.
Berenice (city), i. 396; ii. 94.
Berenice (queen), vi. 427.
Berenice's Hair, i. 103.
Bergamo, i. 248.
Bergamum, i. 248.
Berkeley, Bishop, his "Siris," v. 18.
Berœa, i. 440.
Berosus, ii. 182, 242.
Berry fruits, iii. 319–322.
Beryls, vi. 414, 415.
Berytus, i. 435.
Bestia, Calpurnius, how he slew his wives, v. 218.
Betel, iii. 153.
Beterræ, wines of, iii. 242.
Bethleptephene, i. 428.
Beth-shan, i. 432.
Betony, v. 111, 112.
Bevagna, i. 239.
Beyrout, i. 435.
Bezoar stones, v. 349.
Bibrags, ii. 51.
Biestings, iii. 83; v. 320.
Bilbilis, vi. 208.
Bildulgerid, i. 399.
Bion of Soli, ii. 115; v. 369.
Bion (a wine), iii. 247; iv. 478.
Birch, bitumen from, iii. 371.
Birdlime, iii. 435.
Birds, of Æthiopia and India, ii. 479, 480—classified according to their feet, 490—of ill omen, 491, 492—extinct, 492, 493—born with the tail first, 493—with hooked talons, 495—ominous, 495, 509—migration of, 503–506—flight of, 504–506—places where certain are never found, 507, 508—which change their colour and voice, 509—incubation of, 512—aquatic, 513—construction of their nests, 513, 514—flight of, 520—food of, 521, 522—instinct of, 522—which speak, 522–525—their mode of drinking, 527—their food, 527—foreign kinds, 528—fabulous, 530—language of, 530—v. 397—the generation of, ii. 532–538—when they lay, and how many eggs, 537—why they peck at the eyes, iii. 53—feet of, 90—singing

of, 94—prognostics from, iv. 124—remedies derived from, v. 400. *See also* "Singing of birds."
Births, marvellous, ii. 134–138—monstrous, 142, 144.
Birthwort, v. 117.
Bison, ii. 262.
Bithus, v. 368.
Bithynia described, i. 493.
Bitonto, i. 230.
Bitumen, ii. 152; iii. 364; vi. 293, 294—of Judæa, v. 222, 305.
Bituriges, i. 359.
Biuri, v. 469.
Bizya, i. 307.
Bladder, iii. 74 — animals destitute of, 74—diseases of the, v. 182, 183, 443, 444; vi. 41, 42.
Blachnon, v. 245, 246.
Blackberries, iii. 411; v. 47, 49.
Blackbird, ii. 509—white, 512.
Black Forest, i. 328.
Black marble, vi. 325.
Black stones, vi. 358.
Black vine, iv. 468.
Blasting winds, i. 80.
Blattaria, v. 122.
Blechnon, iv. 261.
Blemmyæ, i. 405.
Blendius, vi. 43.
Blinding of birds, v. 414.
Blindness, iii. 53.
Blindworm, ii. 466.
Blite, iv. 295.
Blood, iii. 65, 78; v. 328—of insects, ii. 3—human, v. 292 — remedies from, 276—discharges of, periodically, iii. 79—which is the thickest, 79—which is the thinnest, 79—other properties of it, 79—whether it is the principle of life, 80—baths of, 155—spitting of, remedies for, v. 438, 439.
Bloodless fish, ii. 416.
Blood-letting, v. 319; vi. 50.
Blood-red shrub, v. 31.
Bloodstone, vi. 448, 450.
Blossoming of flowers, iv. 336, 337—of trees, iii. 380–384.
Blossoms of plants, iv. 170, 171.
Blue, staining the body, iv. 390.
Blue-bell, iv. 328.
Blushing, iii. 80.
Boa (serpent), ii. 262.
Boa (disease), v. 24, 199.
Boarfish, iii. 94.
Boats, various kinds of, the invention of, ii. 234.
Boca, vi. 61.
Bocchus, Cornelius, iii. 437.
Bodies that have the nature of animal and vegetable combined, ii. 453.
Bodincus, i. 246.
Body, gigantic, discovered, ii. 156—remarkable properties of the, 158, 159—parts to which certain religious ideas are attached, iii. 88—maladies which attack the whole of the, v. 194—evils which affect the whole of the, 448, 449.
Boebeis, i. 295.
Bœdas, vi. 176, 179.
Bœotia, described, i. 290.
Boëthus, vi. 139, 184.
Bœus, ii. 555.
Boii, i. 243, 356.
Boils, remedies for, v. 200, 357, 457.
Bokhara, ii. 31.
Boleti, iv. 429.
Bolites, iv. 381.
Bologna, i. 241.
Bologna stone, vi. 447.
Bolos, vi. 444.
Bolters, iv. 41.
Βομβύκια, v. 273.
Bombylis, iii. 25.
Bombyx of Assyria, iii. 25.
Bona Dea, rites of, ii. 536.
Bonasus, ii. 264.
Bones, iii. 77—gigantic, ii. 156—solid, 159, 160 — of the head, iii. 47—broken, remedies for, v. 354, 460, 461.
Bonomi's "Nineveh," referred to, v. 47.
Bononia, i. 241.
Bonus Eventus, vi. 181.
Books, of Numa, discovered, iii. 192—burnt, 192—seasoning of, v. 8.
Boomerang, ii. 253—possible allusion to, v. 47.
Bootskopf, ii. 364, 365.
Borage, v. 109—still used in certain beverages, v. 109.
Boreas, i. 74.
Borion, i. 394.
Borysthenes, i. 331.
Bosporus, i. 306, 326, 495; ii. 2.
Bostock, Dr. i. vi (in the Preface); vi. 68, 147.
Bostrychitis, vi. 444, 461.
Botany, introduction of, ii. 224.
Botryitis, vi. 444.
Botrys, iii. 214; v. 106, 107, 226, 236.
Boug, i. 332.
Boulogne, i. 350.
Bovillæ, i. 199.
Bowels, remedies for pains in the, v. 181 — remedies for maladies in the, v. 346, 347, 348, 442, 443; vi. 39.
Bowstrings, made of the genitals of the camel, iii. 92.
Box-tree, iii. 368, 369, 390, 391.
Box-wood, ii. 4.
Brabyla, v. 236.
Brace (malting wheat), iv. 24.
Brachmanæ, ii. 42.
Braga, i. 164.
Brahma, temple of, vi. 406.
Brahmins, ii. 42, 44.
Brain, of man, iii. 47—and other animals, iii. 48—palpitation of the, 48.
Bramble, iii. 411; v. 47–50—of Ida, iii. 412.
Bramble-frog, ii. 298; iii. 98; iv. 102; v. 128, 303; vi. 22.
Bran, iv. 440.
Branch, propagation from the, iii. 485, 486.
Branches of trees, iii. 391, 392.
Branchidæ, oracle of, i. 466.
Brand's "Popular Antiquities" quoted, ii. 127; v. 282, 283, 389.
Brand-marks, how treated, v. 150.
Brass, a description of, vi. 147–168.
Brathy, v. 41.
Bratus, iii. 135.
Brawn, ii. 345.
Bread, iv. 26, 28, 29, 33, 447—methods of making, 39, 40—various kinds of, 39, 40.
Bream, ii. 389.
Breast, iii. 74—modes of preserving the, v. 464, 465.
Breath, iii. 97—tainted, 97—bad, remedies for, 97; v. 150—of animals, different effects of, iii. 97.
Breeches, i. 173, 174.
Bregma, iii. 112.
Brenta, i. 246.
Brick, used in making bread, iv. 37.

Bricks, vi. 290, 291.
Brilessus, i. 289.
Brindisi, i. 226
Brine, v. 503, 504.
Britain, i. 109; v. 85, 86; vi. 94, 215, 399—described, i. 150—pearls of, ii. 437—oysters of, 468; vi. 27—its geese, ii. 500 — the people of, stain the body, iv. 390—its possible communication with the East, v. 426.
Britannica, v. 85 — why so called, 85, 86.
Brixilum, i. 242.
Brocchi, the family of the, iii. 56.
Brochon, iii. 116.
Bromos, iv. 455.
Brontea, vi. 444.
Bronze, vi. 68.
Bronzite, vi. 412.
Brood-hens, defects in, and their remedies, ii. 535.
Broom, iv. 135; v. 28, 29.
Brundusium, i. 226.
Bruscum, iii. 368.
Brussels sprouts, iv. 185, 239.
Bruttium described, i. 208.
Brutus, Callæcus, vi. 315.
Brutus, L., iii. 335.
Brutus, M., vi. 87.
Brya, iii. 302; v. 30, 31.
Bryaxis, vi. 165, 179, 313, 316, 317.
Bryazus, v. 480.
Bryon, iii. 154, 155, 162, 310; v. 12 — maritimum, 236, 287.
Bryony, iv. 466, 467.
Bubalus, ii. 263.
Bubastis, i. 408.
Bubasus, i. 459.
Bubo, ii. 492.
Bubon, i. 457.
Bubonion, v. 118, 229.
Bucardia, vi. 444.
Buccinum, ii. 444.
Bucephala, ii. 48.
Bucephalus, i. 285; ii. 317.
Buckthorn, v. 50, 51.
Budding, iii. 477.
Buffon, an opinion of, iv. 54.
Bufonite, vi. 444.
Buglossos, v. 109.
Bugs, remedies derived from, v. 392, 393, 394.
Building, woods used in, iii. 426—stones used for, vi 372—methods of, v. 372—defects in, vi. 374.
Buildings, marvellous, at Rome, vi. 345–355.
Bulapathum, iv. 287.
Bularchus, vi. 247.
Bulb emetic, iv. 244.
Bulbine, iv. 244.
Bulbs, iv. 168, 169, 243, 244.
Bulgaria, i. 264.
Bulimia. iii. 99.
Bulls, wild, ii. 280—the appearance of, 329 — fights by, 329 — used as victims, 329 — how ridden, 329.
Bulls' blood, the effects of swallowing, iii. 79; iv. 216; v. 518.
Bulls' gall, iii. 69.
Bulrushes of stone, iii. 212.
Bumastus, iii. 220.
Bunias, iv. 215.
Bunion, iv. 214.
Bupalus, vi. 308.
Bupleuron, iv. 421, 422; v. 237.
Buprestis, iv. 422, 469; v. 503.
Buphthalmos, v. 110, 114.
Bura, i. 280.
Burbuleius, the actor, ii. 147.
Burcana, i. 344.
Burgundiones, i. 345.
Burial, ii. 217.
Burning, places that are always, i. 139, 140, 141.
Burning the dead, ii. 217.
Burning-glasses, vi. 382, 396, 450.
Burning shields, i. 63.
Burns, remedies for, v. 202, 357, 457; vi. 49.
Burying alive, v. 279, 280.
Busiris, i. 421.
Butades, vi. 283.
Butcher's broom, iv. 382.
Buteo, ii. 487, 530; iii. 92.
Buteones, family of the, ii. 487.
Buthrotum, i. 273.
Butoridas, vi. 385.
Butter, iii. 84; v. 323, 324.
Buttermilk, iii. 84.
Buzzard, ii. 487.
Byblis, vi. 264.
Byblos, i. 435.
Byssus, iv. 137; v. 274.
Bythiæ, ii. 127.
Byzacium, i. 390.
Byzantium, i. 307, 495.

C.

Cabbages, most esteemed when yellow, iv. 47—described, iv. 153, 185–188—admired by Cato the Censor, iv. 185—their remedial virtues, iv. 235–241.
Cabinet-work, woods for, iii. 367, 368, 413, 414, 417, 421.
Cabiri, i. 321, 341.
Cacalia, v. 133.
Cachelot whale, ii. 364.
Cachexy, vi. 49.
Cachla, v. 110.
Cacholong, vi. 413.
Cachrys, iii. 351, 352; v. 40, 41.
Cackerel, vi. 35.
Cacoëthes, v. 359, 360.
Cactos, iv, 354, 358.
Cadistus, i. 314.
Cadiz, i. 368.
Cadmia, vi. 148, 149, 191–194.
Cadmitis, vi. 444.
Cadmus, i. 435, 467.
Caduceus, v. 390.
Cadusii, ii. 32.
Cadytas, iii. 433.
Cæcilius, v. 369.
Cæcina, i. 148—ii. 505.
Cæcuban wine, iii. 239, 240; iv. 471.
Cæcubum, i. 195.
Cælia (a kind of beer), iv. 456.
Cæpio, iv. 387.
Cære, i. 188.
Cæruleum, vi. 141–144.
Cæsapon, iv. 228, 229.
Cæsarean operation, ii. 143
"Cæsars," why so called, ii. 143.
Cæsena, wines of, iii. 242.
Cæsennius, iv. 205.
Cæsi, iii. 51.
Cæsones, ii. 143.
Cæsonia, ii. 140.
Cæsus, i. 473.
Caieta, i. 194.
Calabria, i. 225.
Calabrix, iii. 467.
Calagurris, i. 166.
Calahorra, i. 166.
Calamine, vi. 191, 194.
Calamis, vi. 139, 167, 320.
Calamites, vi. 31, 32, 50.
Calamochnus, vi. 58.
Calamus, sweet-scented, iii. 144, 187.
Calatajud, i. 171.
Calathi, iv. 315.
Calchas, i. 228.
Calcifraga, v. 244.
Calculi, urinary, remedies for, iii. 74, 92; v. 182, 183, 443, 444.
Caledonian Forest, i. 350.
Calendar, Roman, vi. 76, 77.
Calenian wine, iii. 241.
Calentum, i. 162.
Calenus, Olenus, v. 280, 291

Caliga, ii. 189, 405; iv. 429; vi. 207.
Caligula, the Emperor, i. 279; ii. 143; iii. 51; vi. 2, 104, 230, 349.
Calingæ, ii. 42, 134.
Calingi, ii. 47.
Calippus, iv. 127.
Callaica, vi. 445.
Callaina, vi. 427, 428.
Callais, vi. 444.
Callarias, ii. 399.
Calliblephara, iv. 495; vi. 299.
Callicia, v. 62.
Callicles, vi. 186, 269.
Callicrates, i. 270; ii. 162, 163; vi. 323.
Callidemus, i. 372.
Callimachus, i. 371—quoted, 267, 310, 318.
Callimachus (the artist), vi. 188.
Callimachus (the physician), iv. 388.
Callimus, vi. 365.
Callionymus, vi. 30.
Calliphanes, i. 270.
Callipolis, i. 225, 308.
Callistratus, vi. 467.
Callisthenes, iii. 156, 157.
Callistratus, vi. 170.
Callistus, vi. 329.
Callitriche, ii. 348.
Callitrichos, iv. 415, 416, 417; v. 132, 133.
Callon, vi. 168.
Calpas, ii. 2.
Calpe, i. 152.
Caltha, iv. 318.
Caltrop, iv. 355.
Calves, men only has them, iii. 89.
Calves (animals), ii. 329.
Calvinus, Domitius, iii. 99.
Calvus, the orator, vi. 216. And *see* "Macer."
Calycadnus, i. 449.
Calydne, i. 484.
Calydon, i. 275.
Calymna, i. 323.
Calypso, Islands of, i. 213.
Calyx, v. 238.
Camarina, i. 218.
Cambalidus, ii. 79.
Cambyses, ii. 92; vi. 332.
Camel, ii. 276; iii. 58; v. 308, 309—its feet, iii. 89—its genitals, iii. 92.
Cameleopard, ii. 277—when first seen at Rome, 277.
Camelodunum, i. 109.
Camerinum, i. 328.
Camillus, i. 248; vi. 119, 158.
Cammaron, v. 218—222.
Cammarus, v. 220; vi. 62.
Cammock, iv. 355.
Camomile, v. 186.
Camp, luxury of the Roman in perfumes, iii. 168.
Campania, i. 195—its roses, iii. 169—its wheat, iv. 41
Campaspe, vi. 259.
Campi Lapidei, i. 176.
Campion rose, vi. 425.
Campter, vi. 314.
Campus Martius, vi. 333, 334.
Canachus, vi. 169, 180, 322.
Canal from the Nile to the Red Sea, ii. 92.
Canaries (islands), ii. 107.
Canary grass, v. 264.
Cancamum, iii. 142.
Cancer (the disease), remedies for, v. 359, 360.
Cancer, sign of, transforms crabs into serpents, ii. 427.
Candace, Queen, ii. 101.
Candahar, ii. 57.
Candaules, vi. 247.
Candelæ, vi. 123.
Candia, i. 313.
Candle rushes, iii. 411.
Cane (place), ii. 64.
Canephori, vi. 314.
Canine madness, ii. 136. *See* "Hydrophobia."
Canine teeth, iii. 56, 58.
Cannabis, iv. 198, 297, 298.
Cannæ, i. 230.
Cannibalism, ii. 122. *See* "Anthropophagi."
Canobus, i. 420.
Canoes, ii. 65.
Canon, vi. 171.
Canopus, i. 420, 479.
Cantabri, i. 361.
Cantabrica, v. 112.
Cantharias, vi. 459.
Cantharis, iv. 55.
Cantharus (artist), vi. 185.
Cantharus (fish), vi. 61.
Cantharus, ii. 330.
Cantharides, iii. 41; v. 303, 403, 404, 405.
Cantharite wine, iii. 246.
Canusium, i. 228.
Capena, i. 189.
Caper, iii. 206, 207; iv. 194, 264, 265.
Caper-plant, v. 252.
Caphareus, i. 316.
Caphrena, ii. 72.
Capillati, i. 255; iii. 46.
Capisa, ii. 57.
Capito, C. Ateius, i. 269.
Capito, Oppius, ii. 151.
Capitolinus, Manlius, his singular valour, ii. 171.
Capnos, v. 42.
Cappadocia (the country), described, ii. 6, 16.
Cappadocia (a stone), vi. 445.
Cappadox, ii. 7.
Capparis, iii. 206, 207; iv. 264, 265.
Caprææ, ii. 346, 347.
Capraria, i. 213.
Caprification, iii. 312, 313, 530, 531.
Caprificus, iii. 311, 312, 313.
Caprimulgus, ii. 521.
Capsa, i. 395.
Captatio, iv. 262.
Capua, i. 198; vi. 143.
Carabi, ii. 424.
Carambis, ii. 4, 501.
Carambucis, ii. 24.
Caraway, iv. 194.
Carbasus, iv. 133; v. 273.
Carbo, Cn. Papirius, ii. 153—his death prognosticated by mice, ii. 353.
"Carbo," meaning of the word, vi. 423.
Carbuncle, remedies for, v. 154, 198, 467; vi. 52, 53.
Carbunculus (the stone), vi. 420—423, 425.
Carcasum, i. 179.
Carcasonne, i. 179.
Carchedonia, vi. 425.
Carcine, i. 332.
Carcinethron, v. 259, 260.
Carcinias, vi. 459.
Carcinomata, v. 359, 360; vi. 52.
Cardamomum, iii. 123.
Cardiac disease, iii. 67; iv. 477.
Carduelis, ii. 522.
Carduus, iv. 353.
Carfiathum, iii. 127.
Caria, described, i. 458—its name, ii. 230.
Caricatures, vi. 270.
Caricæ, iii. 178.
Carinthia, i. 263.
Carmania described, ii. 66.
Carmelus, i. 434.
Carnac, i. 416.
Carneades, ii 175; v. 98.
Carnelian, vi. 418, 420, 425, 426, 431.
Carob, iii. 319, 181; iv. 516.
Caryophyllon, iii. 113.
Caros, v. 185.
Carpathian Sea, i. 323.
Carpathum, vi. 25.
Carpathus, i. 483.
Carpenters' woods, iii. 427. *See* "Cabinet-work."
Carpentoracte, i. 179.
Carpentras, i. 179.

Carphos, v. 74.
Carpinus, iii. 368.
Carrara marble, vi. 309.
Carrhæ, i. 443. 444.
Carrot, iv. 166, 219, 220; v. 124.
Carrucæ, vi. 132.
Carseoli, iii. 516.
Cartana, ii. 57.
Carteia, i. 156.
Cartenna, i. 385.
Carthage, Great, i. 390—hated by Cato the Censor, iii. 309, 310.
Cartilage, iii. 77.
Carvilius, Spurius, vi. 165, 166.
Carving, ii. 184.
Caryanda, i. 485.
Caryatides, vi. 313.
Caryites, v. 178.
Carynian wine, iii. 262.
Caryotæ, iii. 175.
Carystus, i. 309, 317.
Casignetes, v. 66.
Casilinum, siege of, ii. 351.
Casius, i. 424, 438.
Casks, iii. 268.
Caspian Gates, ii. 28; v. 501.
Caspian Passes, ii. 21.
Caspian Sea, i. 453; ii. 20, 24.
Cassander, i. 300; v. 492.
Cassia, iii. 140, 141, 396.
Cassiterides, i. 367.
Cassiteris, ii. 225.
Cassiteros, vi. 212, 213.
Cassius Parmensis, v. 522.
Cassius, Spurius, vi. 154.
Castabala, ii. 6.
Castalia, i. 277.
Castes of India, ii. 44.
Casthanea, i. 296.
Castor, Antonius, iv. 304; v. 80, 81.
Castor and Pollux (stars), i. 64, 65.
Castor oil, iii. 287; iv. 489, 490.
Castoreum, ii. 297; vi. 13, 14 15.
Castra Cornelia, i. 389.
Castration, iii. 92.
Castritius, iv. 205.
Castulo, i. 164.
Catabathmos, i. 397.
Catacecaumene, wine of, iii. 246.
Catadupi, i. 412; ii. 97.
Cataguna, vi. 177.
Catamance, v. 237.
Catapulta, ii. 228.
Cataract, cure of, iii. 53.
Cataractæ, ii. 526.
Cataracts, i. 412, 415.
Catchweed, v. 227.
Catechu, iii. 113; v. 51.
Caterpillars, ii. 552; iii. 522; iv. 200.
Cathæan mountains, ii. 16.
Catharcludi, ii. 131.
Catiline, i. 82.
Catkin, v. 41.
Catmint, iv. 261, 262.
Cato the Censor, i. 202, 267; ii. 150, 175, 176—his high character, 169—his treatment of wines, iii. 267—his hatred to Carthage, 309, 310—his admiration of the cabbage, iv. 185. 235—his bad opinion of the Greeks, v. 375, 376—quotations from his work, i. 10, 188, 232, 241, 548; iii. 248, 281, 285, 308, 313, 315, 332, 379, 409, 410, 416, 417, 450, 458, 459, 465, 469, 470, 471, 472, 474, 476, 481, 482, 486, 487, 502, 509, 510, 511, 520, 532, 535; iv. 5, 11, 12, 13, 14, 18, 59, 63, 71, 81, 86, 91, 153, 185, 189, 236, 237, 240; v. 188, 365; vi. 373.
Cato of Utica, i. 4, 389; ii. 150, 176; v. 405; vi. 188.
Catoblepas, ii. 281.
Catochitis, vi. 445.
Catullus quoted, i. 1, 103; vi. 324, 366, 416—his birthplace, i. 253.
Catulus, Q., iii. 498.
Catus, ii. 178.
Cat worship, ii. 98.
Cats, ii. 494, 541, 543, 550; iii. 53. 61; iv. 58; v. 334, 360, 363.
Cats'-eye chalcedony, vi. 438. 443, 449. 452, 458.
Caucalis, iv. 349, 424.
Caucasus, Passes of, ii. 1.
Cauline wine, iii. 244.
Caunos, i. 459.
Cautery, vi. 396.
Cave-snails, ii. 311.
Cavea, ii. 275; vi. 350.
Caverns, windy, i. 71.
Caves, for weaving, iv. 132.
Cavneæ, iii. 313.
Cayster, i. 466.
Cea, i. 315.
Cebrenia, i. 476.
Cebriones, vi. 323.
Cecrops, i. 289, 290; ii. 222.
Cedar, iii. 178; v. 8, 9.
Cedræi, i. 422.
Cedrelates, iii. 178.
Cedria, v. 8.
Cedrides, v. 9, 10.
Cedrium, iii. 361.
Celadussæ, i. 266.
Celænæ, i. 461, 491.
Celandine, v. 114.
Celeres, vi. 85.
Celestial prodigies, i. 59, 60—Coronæ, i. 61.
Celetes, vi. 156.
Celsus, Cornelius, ii. 240; v. 370—on gestation, ii. 140.
Celtiberi, i. 162.
Cements, vi. 288, 289.
Cemos, v. 237.
Cenchramis, vi. 186.
Cenchreæ, i. 278, 285.
Cenchris, ii. 532.
Cenchritis, vi. 459.
Cendebia, vi. 379.
Cenomanni, i. 252, 356.
Censorial laws, vi. 306.
Centauri, ii. 229.
Centaurion, v. 103, 104, 105.
Centauris triorchis, v. 104, 105.
Centaury, v. 103, 104.
Centifolia, iv. 312.
Centipedes, iii. 91; v. 417.
Centrones, i. 255.
Centum capita, iv. 397.
Centunculus, v. 56.
Centurion, his mark of authority; iii. 221, 222—instance of one honoured with a crown, iv. 394.
Centuripa, i. 219.
Cepæa, v. 184.
Cephallenia, i. 310.
Cephenes, iii. 17.
Cepheus, ii. 99.
Cephisia, i. 289.
Cephisodotus, vi. 169, 170, 179, 180, 185, 186, 314.
Cephisus, i. 291, 292.
Cepitis, vi. 445.
Ceponides, vi. 447.
Ceræ, vi. 244, 245.
Ceramicus, vi. 285.
Ceramitis, vi. 445.
Cerastes, ii. 285; iii. 45; iv 264.
Cerasus, ii. 9.
Cerate, iv. 368.
Ceratia, v. 173.
Ceratitis, iv. 278.
Ceraunia, vi. 437, 438.
Ceraunian Mountains, i. 454; ii. 16, 20.
Ceraunus, ii. 7.
Cerberion, ii. 14.
Cercina, i. 402.
Ceres, festivals of, v. 508.
Cerigo, i. 312.
Cerinthe, iv. 340.
Cerinthos, iii 7.
Ceritis, vi. 445.
Cerne, ii. 105. 488.
Ceroma, v. 295.

Cerrus, iii. 346; v. 67.
Cerusæ, vi. 219, 220, 238, 239.
Cervesia, iv. 456. And *see* "Beer"
Cesi, ii. 47.
Cestros, v 111, 112,
Cestrota, iii. 45.
Cetariæ, ii, 387.
Ceterach, v. 95. 96.
Cethegus, Cornelius, iv. 192.
Ceto, i. 426.
Ceuta, i. 384.
Cevennes, i. 174.
Ceylon, ii. 51; vi. 59.
Chabura, v. 485; vi. 8.
Chæreas of Athens, ii. 357.
Chæristus, ii. 276.
Chæremon, vi. 341.
Chæronea, i. 291.
Chaff, iv. 440, 441—used by goldsmiths, 37 — used for hay, 104.
Chakal, ii. 304.
Chalasis in the egg, ii. 533.
Chalastra, i. 289; v. 513.
Chalazian stone, vi. 367.
Chalazias, vi. 460.
Chalcanthum, vi. 197, 200, 201.
Chalcedon, i. 495—why called the City of the Blind, ii. 388.
Chalcedony, vi. 329, 388, 412, 413, 418, 419.
Chalceus, iv. 353.
Chalcetum, v. 168.
Chalcis, i. 316, 317.
Chalcis (fish), ii. 459.
Chalcitis, vi. 148, 198, 201, 202.
Chalcophonos, vi. 446.
Chalcopyrite, vi. 369.
Chalcosthenes, vi. 285.
Chaldæi, vi. 424.
Chalk, *used* in making bread, v. 33, 42—described, vi. 300, 301.
Chalonitis, ii 78.
Chalybes, ii. 351.
Chamia, ii. 278.
Chamæacte, v. 23, 24.
Chamæcerasus, iii. 323.
Chamæcissos, v. 35, 54, 126.
Chamæcyparissos, v. 55.
Chamædaphne, iii. 333; iv. 382; v. 53.
Chamædrys, v. 52, 53.
Chamæleon (animal), ii. 302, 303; v. 315—318—has nothing but lungs in the body, ii. 67—peculiarity of its eyes, iii. 54.
Chamæleon (plant), iv. 353, 407, 408, 409, 453; v. 234.
Chamæleuce, v. 54, 55, 164.
Chamæmelum, iv. 411, 412.
Chamæmyrsine, iv. 521.
Chamæpeuce, v. 55.
Chamæpitys, v. 13, 14, 185.
Chamæplatanus, iii. 106.
Chamæreps, iii. 174.
Chamærops, v. 169.
Chamæsyce, v. 54
Chamæzelon, v. 122, 123, 249.
Chamelæa, iii. 201, 287; iv. 53, 54, 108, 109.
Chamois, iii. 44.
Chamses, v. 314.
Channe, ii. 391, 467, 468; vi. 65.
Chaones, i. 271.
Chaplets, iv. 304—309, 329, 330, 333, 334.
Characias, v. 177, 178.
Character expressed by the eyes, iii. 51, 52.
Charax, i. 333; ii. 80. 81.
Charcoal, iii. 348, 349; vi. 383.
Charcoal-blight, iii. 520; iv. 95, 97.
Chares (artist), vi. 165, 166.
Chares of Mitylene, iii. 157
Chargers of silver, vi. 134.
Chariot-horses, ii. 319, 320.
Charioteers, ii. 217, 319, 320.
Chariots, invention of, ii. 226, 229.
Charis, vi. 256.
Charitoblepharon, iii. 212, 213.
Charmis, v. 374. 379.
Charms. *See* "Magic."
Charybdis, i. 216.
Chasuty, instances of, ii. 180.
Chatterer, ii. 528.
Chatti, i. 347.
Chauci, i. 346; iii. 339, 340.
Cheek-teeth, iii. 59,
Cheeks, iii. 55 — forbidden to tear the, 55.
Cheese, iii. 84; v. 322—various kinds of, iii 85—made of sheep's milk, 85—of goats' milk, 85—becomes salt when old, 85—Zoroaster lived on it, 85.
Cheeses, modern, referred to, iii. 85.
Chelidonia (plant), ii. 292; v. 114.
Chelidonia (stone), vi. 446.
Chelidoniæ, i. 482.
Chelidonium, i. 453, 455.
Chelonia, vi. 446.
Chelonitis, vi. 446.
Chelonophagi, ii. 67, 379.
Chelyon, ii. 379.
Chemæ, vi. 62.
Chenalopex, ii. 500.
Cheneros, ii. 500.
Chenomyche, iv. 335.
Cheops, vi. 337.
Chernites, vi. 357.
Chernitis, vi. 461.
Cherry, ii. 9; iii. 322, 323; iv. 511.
Chersinæ, ii. 379.
Chersiphron, the architect; ii. 183, 184; vi. 343.
Chersonesus, i. 305, 327, 333.
Cherusci, i. 348.
Chervil, iv. 423.
Chesnut, i. 296, 318, 319, 485, 494; iv. 516.
Chess-board, vi. 391.
Chest, remedies for diseases of the, v. 164, 165; vi. 38.
Chian earth, vi. 299.
Chian wine, iii. 245.
Chiaroscuro, vi. 247, 251, 275.
Chicheling vetch, iv. 450, 451.
Chickens, ii. 534, 535.
Chickpea, iv. 46, 450, 451.
Chicory, iv. 233, 234.
Childhood, critical periods of, ii. 140.
Children, when they begin to speak, iii. 94—when to walk, 95.
Chilliodynamus, v. 102, 103.
Chilney, island of, ii. 51.
Chilon, his precepts, ii. 178.
Chimæra, i. 140, 272, 455.
Chimpanze, ii. 279.
Chin, iii. 56.
China, ii. 36.
Chinese, possible reference to, ii. 131.
Chios described, i. 486.
Chiron, ii. 224; v. 90, 91, 94, 103.
Chironia, iv. 468.
Chironian pyxacanthus, iii. 114.
Chironion, v. 103, 104.
Chlampyá, i. 419.
Chloreus, ii. 551.
Chlorion, ii. 512.
Chlorite, vi. 446.
Chloritis, vi. 446.
Choara, ii. 29.
Choaspes, ii. 77.
Choaspitis, vi. 446.
Cholera, iv. 449.
Chondris, v. 115, 116, 172.
Chondrylla, iv. 349, 358, 359, 427.
Choraules, vi. 388.
Choromandæ, ii. 131.
Chresimus, C. Furius, iv. 17.

Christianity, a possible reference to, v. 425.
Chromis, ii. 392.
Chrysalis, iii. 39, 41.
Chrysanthemum, iv. 380, 381; v. 186.
Chryse, ii. 37.
Chryselectrum, vi. 434, 435.
Chrysendeta, vi. 70, 92.
Chrysermus, iv. 456.
Chryses, i. 495.
Chrysippus, iv. 301; v. 371, 372.
Chrysites, vi. 367.
Chrysitis, vi. 117.
Chrysitis (plant), iv. 329.
Chrysobora, ii. 46.
Chrysocarpos, v. 33.
Chrysoceras, i. 307.
Chrysocolla, vi. 69, 107, 110, 243.
Chrysocolla (stone), vi. 442.
Chrysocome, iv. 329, 373.
Chrysolachanum, v. 241.
Chrysolampis, vi. 447.
Chrysolite, vi. 426, 427.
Chrysolithos, vi. 434, 435.
Chrysomelum, iii. 293.
Chrysophrys, vi. 65.
Chrysopis, vi. 447.
Chrysopolis, i. 495.
Chrysoprase, vi. 413, 414, 415, 427, 429.
Chrysopteron, vi. 427.
Chydæi, iii. 176.
Cicada, iii. 31, 32, 33.
Cicatrization, applications for promoting, v. 461.
Cicer, iv. 450, 451.
Cicero, the Orator, i. 199, 202; vi. 323, 324, 371—eulogium on him, ii. 177—quotations from his works, i. 3, 4, 7, 17, 18, 21, 22, 23, 24, 28, 68, 82, 112, 127, 129, 142, 462; iii. 456; iv. 81; v. 476, 491; vi. 139, 171, 173, 174, 177, 224, 254.
Cicero, the Younger, his singular drunkenness, iii 273.
Cichorium, iv. 182, 233, 234.
Cicus, iii. 287, 489.
Cicuta, v. 140, 141.
Cilicia described, i. 446.
Cilium, iii. 55.
Cimbri, i. 346, 347; v. 159; vi. 305—victory over the, ii. 163.
Cimmerian Bosporus, i. 335; ii. 13.
Cimmerium, i. 334; ii. 14.
Cimolian earth, vi. 300.
Cimolus, i. 322.
Cimon (artist), vi. 248.
Cinaris, ii. 200.
Cinædia, i. 445.
Cinædopolis, i. 485.
Cincinnatus, iv. 9.
Cincius, vi. 385.
Cineas, his extraordinary memory, ii. 164—his witticism, iii. 219.
Cinnabar, iii. 162—mistake made as to its identity, v. 380.
Cinnabaris, vi. 120, 121.
Cinnamolgus, ii. 515.
Cinnamominum, iii. 164.
Cinnamomum, iii. 137–140—chaplets of, iii. 140.
Cinnamon, iii. 155, 156.
Cinquefoil, v. 122, 123.
Cippus, story of, iii. 44.
Circæa, v. 238.
Circæon, v. 138, 139, 140.
Circe, i. 193; ii. 126; iii. 197; v. 81.
Circeii, i. 192, 198.
Circles suddenly formed in the air, i. 62.
Circos, vi. 445.
Circuit of Rome, i. 203.
Circus Maximus, vi. 346—games of the, ii. 320.
Cirsion, v. 230.
Cirta, i. 388.
Cissanthemos, v. 125.
Cissitis, vi. 459, 460.
Cissos, v. 34, 35.
Cistern water, v. 484.
Cisterns, vi. 373.
Cisthos, v. 34.
Cithæron, i. 290.
Cities swallowed up by the sea, i. 120.
Citium, i. 481.
Citron, iii. 106, 107, 198; iv. 498—eaten with vinegar, iv. 498.
Citrus, iii. 159, 192, 194–197—great value of the wood, iii. 194.
Civet, possible allusion to, ii. 274.
Civic crown, iii. 341, 342, 344.
Clarian Apollo, i. 469.
Clarigation, iv. 391.
Claudia, ii. 180.
Claudius, the Emperor, i. 245, 259, 497; iv. 428; v. 379; vi. 262, 354, 417—the colour of his eyes, iii. 51—poisoned, 68.
Clazomenæ, i. 470—wine of, iii. 245.
Cleanthes (artist), vi. 229.
Clefts in the earth, i. 112, 113.
Clelia, vi. 160.
Clema, v. 259, 260.
Clematis, iv. 339; v. 35, 56, 57
Clematitis, v. 116, 117.
Cleobulus, i. 373.
Cleombrotus, ii. 182.
Cleomenes, vi. 318.
Cleon, vi. 186.
Cleonæ, i. 287.
Cleopatra, iv. 309, 310—swallows a pearl of great value, ii. 439.
Cleophantus, iv. 302.
Clepsydra, ii. 239.
Clidnchus, vi. 171.
Climacteric, ii. 205.
Climate, i. 110, 111—inequality of, i. 102, 103, 104.
Climax Megale, ii. 69.
Clinical practice, v. 371.
Clinkstone, v. 446.
Clinopodium, v. 55, 56.
Clipping of shrubs, iii. 106.
Clitarchus, ii. 115.
Clitus, vi. 261.
Clitorium, i. 287.
Clitorius, Lake, v. 477.
Clivia, ii. 493.
Clodius, Publius, vi. 157, 206, 346.
Clodius, Servius, v. 87.
Cloth, fine, i. 316—different kinds of, ii. 336.
Clothing derived from trees, iii. 118.
Clot-burr, v. 120.
Clouds, i. 69—stones falling from the, i. 88, 89—prognostics derived from, iv. 121, 122.
Clover, iv. 53, 54.
Cluacina, Venus, iii. 329, 330.
Clupea, ii. 383—sprattus, 389.
Clusium, i. 289.
Clymenus, v. 105.
Clypea, i. 330.
Clypei, vi. 227, 228
Cnecos, iv. 350.
Cneorum, iii. 201.
Cnestron, iii. 201.
Cnidian Venus, vi. 312.
Cnidinum, iii. 290.
Cnidos, i. 460.
Cnossus, i. 314.
Coagulum terræ, v. 241.
Coan Venus, vi. 312.
Coan vestments, ii. 37; iii. 26.
Coatings for colours, vi. 244, 245.
Cobalt, vi. 107, 109.
Cobios, v. 180.
Cobweb blight, iii. 522.
Cobwebs, v. 410.

Coccus, iii. 353.
Coccus Cnidius, v. 242.
Coccus ilicis, ii. 450.
Coccygia, iii. 204.
Cochineal, iii. 353.
Cochleæ, vi. 62.
Cochlides, vi. 461, 462.
Cock, the dunghill, ii. 496, 497—how castrated, 498—one that spoke, 498.
Cockfighting, ii. 497, 498.
Cock'scomb, v. 230.
Cockles, vi. 41, 62.
Cocles, Horatius, vi. 157, 345.
Cocolobis, iii. 226.
Cocoons, iii. 26.
Codanian Gulf, i. 343.
Codierite, vi. 407.
Coelesyria, i. 423, 438, 439.
Coeliac flux, iv. 217.
"Coelum," origin of the word, i. 17.
Coeranus, i. 149.
Coffins, made of earthenware, vi. 286.
Coimbra, i. 363.
Coins, Roman, an account of, vi. 89, 90, 91.
Colapis, i. 264.
Cold drinks, iv. 152.
Coliacum, ii. 54.
Colias, vi. 61.
Colic, iii. 71; v. 155, 156—dogs greatly troubled with, iii. 71.
Colica described, ii. 11.
Collatia, i. 205, 230.
Collegia, the Roman, vi. 246.
Collyrium, vi. 298.
Colocasia, iv. 347, 348, 382.
Colocynthis, iv. 212, 213.
Cologne, i. 355.
Colon, iii. 71—affections of the, v. 348, 349.
Colonies, i. 154, 161.
Colonna, Cape, i. 289.
Colopene, ii. 6.
Colophon, i. 469.
Colossæ, iv. 329.
Colossal, paintings, vi. 246—statues, vi. 164, 165, 166.
Colossus of Rhodes, vi. 165
Colostra, iii. 83; v. 320.
Colotes, vi. 186, 247, 404, 419.
Colouring of tissues, vi. 282, 283.
Colours, of the stars, i. 49, 50—of the sky, 60, 61—of wines, iii. 247, 248; iv. 475—of juices, iii. 325, 326—primary, iv. 326—of flowers, 326, 327—plants delineated in, v. 80—artificial, vi. 325—for painting, 245, 246.
Coltsfoot, v. 54, 55.
Columber haje, ii. 285.
Columbraria, i. 211.
Columella, L. J. M., mentioned, ii. 354—quoted, i. 142; iii. 457, 490, 491, 499; iv. 11, 27, 63, 105, 131.
Columnæ, ii. 105.
Columns of Hercules, i. 152.
Columns, vi. 374, 375—of marble, 306, 307.
Coluthia, vi. 36.
Colymbades, iii. 283; iv. 486.
Comacum, iii. 155, 156.
Comana, ii. 6.
Comata, Gallia, why so called, iii. 46.
Combretum, iv. 319, 369.
Come, v. 270.
Comets, i. 55–58.
Comfrey, v. 231, 232.
Comitium, iii. 310.
Commagene (country), i. 443.
Commagene (plant), v. 380, 391.
Commagenum, ii. 500; v. 390, 391; vi. 466.
Commiades, iii. 338.
Commosis, iii. 6.
Como, i. 248.
Compartitions, vi. 141.
Compitalia, vi. 384.
Complutum, i. 169.
Compluvium, iii. 500.
Comum, i. 248.
Conception, ii. 144, 152.
Conch, vi. 39.
Conchylia, ii. 443.
Conchyliated fabrics, ii. 448.
Conchylium, vi. 29.
Conditorium, ii. 157.
Condochates, ii. 43.
Condrion, iv. 427.
Condurdum, v. 162, 163.
Confarreation, iv. 5.
Conferva, v. 242.
Conflagration of the universe, ii. 156.
Conger, ii. 395, 408.
Congress, sexual, ii. 141.
Conimbrica, i. 363.
Conjuring up of thunder, i. 84.
Conopas, the dwarf, ii. 157.
Consentia, i. 269.
Considia, v. 20.
Consiligo, v. 112, 113.
Consingis, ii. 313.
Constantinople, i. 307.
Constellations, ii. 4–9.
Constructions without iron, vi. 345.
Contents, table of, as given by the author, i. 11, 12.
"Conterraneus," meaning of the term, i. 1.
Contests by painters, vi. 248, 249.
Contracts, vi. 82.
Contributions, voluntary, at Rome, vi. 131.
Contusions, cured by thapsia, iii. 206—remedies for, v. 358.
Conventus juridicus, i. 159.
Convolvulus, iv. 315.
Convulsions, remedies for, v. 205.
Conyza, iv. 266, 267, 332, 333.
Cookery, iv 203, 431.
Cooks, iv. 41.
Copbes, ii. 50, 59.
Coponius, Q., vi. 287, 322.
Copper, working of, ii. 224, 225—weapons made of, v. 94—various kinds of, described, vi. 147–155, 189, 190, 191, 193, 194.
Coptos, i. 407, 416.
Cora, i. 200.
Coracesta, v. 62.
Coracias, ii. 492.
Coracinus, i. 410; ii. 394, 404; vi. 24.
Coracles, i. 351, 415; ii. 233; vi. 212.
Coral, vi. 10, 11, 12—used for infants, v. 290; vi. 12.
Corallis, vi. 445.
Corallitic stone, vi. 330.
Corallochates, vi. 440, 445.
Corani, vi. 358, 359.
Corbulo, Domitius, i. 104, 497; ii. 17, 20, 26, 140.
Corcboron, v. 136, 137, 138.
Corchorus, iv. 349, 386.
Corculus, ii. 178
Corcyra, i. 267, 310.
Cordage, iii. 187.
Cordi, ii. 331.
Cordia sebestana, iii. 182.
Cordial, iv. 424.
Cordova, i. 163.
Corduba, i. 162.
Cordueni, ii. 29.
Cordus, Cremutius, ii. 239.
Corfidius, ii. 212.
Corfinium, i. 231.
Corfu, i. 310.
Coriander, iv. 282.
Corinth, i. 279—capture of, vi. 150, 152, 153.
Corinthia, v. 63.
Corinthian brass, vi. 147, 149, 150, 167.
Corinthian Gulf, i. 178
Coriolanus, C. M., i. 205.
Corioli, i. 206.
Corison, v. 185.
Cork, uses of, iii. 354.
Cork-tree, iii. 354, 524; v. 7.
Cormorant, ii. 529.

Corn, first use of, ii. 220—low prices of, iv. 7, 8—grinding of, 36, 37, 38—prodigies connected with, 60—modes of storing, 104–107.
Corn marygold, v. 186.
Corn poppy, iv. 278.
Cornel, iii. 323; iv. 516; v. 31.
Cornelia, ii. 151, 154, 181.
Cornelian. *See* "Carnelian."
Cornuta, ii. 411, 415; vi. 60.
Corocotta, ii. 296, 297.
Corollæ, iv. 306.
Corona graminea, iv 392.
Coronæ, celestial, i. 61.
Corone, i. 282.
Coronea, i. 291.
Coronopus, iv. 409.
Corpulence, how caused, iii. 98—how reduced, 98.
Corrada, iv. 188, 190, 245, 246.
Corsica described, i. 213.
Corsoeides, vi. 445.
Cortex, ii. 380.
Corundum, vi. 407, 420, 433, 434, 435, 437.
Corus, i. 74, 77; iv. 116.
Corvinus, Valerius Messala, vi. 144.
Corvus corax, ii. 491.
Corybantes, i. 313.
Corycos, i. 449.
Corycus, i. 314; v. 482.
Corymbi, iii. 400.
Corymbites, v. 180.
Coryphæ i 74.
Coryphia, vi. 36.
Cos, i. 484—silk of, iii. 26—wines of, 247, 248.
Cosenza, i. 209.
Cosmetics, iv. 210, 211, 512; v. 340, 383; vi. 220.
Cossi, iii. 40.
Cossiæi, ii. 79.
Cossicius, L., ii. 138.
Cossis, iii. 519; v. 459.
Costus, iii. 119.
Cosyra, i. 403.
Cotinus, iii. 371.
Cotonea, v. 169.
Cottana, iii. 178.
Cottiani, i. 255, 257.
Cottius, i. 255.
Cotton, ii. 36; iii. 223, 377; iv. 134, 135; v. 273. 274—or silk alluded to, ii. 131—possible origin of the word, iii. 118.
Cotton-tree, iii. 108, 117, 118, 193, 194.
Cottonara, ii. 65.
Cotyledon, v. 143.
Couches, when first adorned with silver, vi. 134, 135—made of brass, vi. 153.
Couch-grass, v. 72, 73.
Cough, v. 163—remedies for, v. 343, 344; vi. 38.
Countercharms, v. 290.
Counter poisons, v. 407, 408; vi. 19.
Courage, extreme, ii. 170.
Coverings of the skin, iii. 81.
Crabs, ii. 424, 425, 426; vi. 23, 48—cooked, iii. 21.
Cracca, iv. 52.
Cragus, i. 457.
Cramming poultry, ii. 531.
Cranes, i. 306; ii. 501, 509—their instinct, ii. 501—and the Pygmies, ii. 132.
Crannon, i. 295, 297; v. 479.
Crapula, iii. 265, 266; iv. 237.
Crassus, L., iii. 438, 439, 440; vi. 232, 307.
Crassus, M., the elder, never laughed, ii. 159
Crassus, M. i. 443; ii. 31; iii. 313, 331; vi. 129.
Crataegis, v. 191.
Crataegonos, v. 238.
Crataegos, v. 239.
Crataegum, iii. 390.
Crater, vi. 285.
Crateritis, vi. 445.
Craterus, vi. 320.
Crates, i. 371.
Crateus, iv. 302.
Crathis, v. 476
Cratinus, vi. 279.
Crawfish, vi. 23.
Crayfish. ii. 423, 424—of monstrous size, ii. 360.
Cremmyon, i. 283.
Cremona, i. 252.
Crepis, iv. 356.
Cresses, iv. 191, 251. 252.
Cretaceous earths, vi. 299, 300, 301.
Cretan Labyrinth, vi. 340, 341.
Crete, described, i. 313—figs of, iii. 181.
Crethmos, v. 141. 183, 184.
Cretica, v. 116, 117.
Crickets, iii. 34; v. 418, 439.
Crimea, i. 333.
Crimson tint, ii. 450.
Crinas, v. 373, 374.
Crissa, i. 276, 277.
Crista, v. 230, 231.
Critias, vi. 168.
Critobulus, i. 182.
Critodemus, i. 149.
Criton, iv. 127.
Crinmetopon, i. 313, 334; ii. 501.
Croaking of frogs, iii. 61.
Crocallis, vi. 446.
Crocias, v. 460.
Crocinum, iii. 160.
Crocis, v. 67.
Crocodeilopolites, i. 409.
Crocodile, ii. 287, 288, 289; v. 314, 315—when first exhibited at Rome, ii. 290, 291—when it does not attack, 331—has a moveable jawbone, iii. 56.
Crocodilea, v. 314.
Crocodileon, v. 240.
Crocomagma, iv. 370.
Crocotta, ii. 279.
Crocus, iv. 319, 320, 321, 370.
Croesus, i. 461, 466, 474; vi. 131—his son speaks in his infancy, iii. 94.
Cromil, iv. 411.
Cronia, ii. 4.
Cronian Sea, i. 342, 351.
Crop of birds, iii. 71.
Crops, their influences on land, iii. 459—adapted to certain soils, iv. 59, 60.
Crotalia, ii. 435.
Croton, iii. 287.
Crotona, i. 209, 223.
Crowns, various kinds of, ii. 171; iii. 342, 348, 344—made of plants, iv. 392, 395—of gold, vi. 86.
Crows, ii. 490, 491—ill-omened, 491—speaking, 525—shrewdness of, 525, 526.
Crucibles, vi. 101.
Crudity, remedies for, iii. 98.
Crustaceous sea-animals, ii. 423.
Crustumerinm, i. 191.
Crustuminm, i. 241.
Crystal, v. 306, 394–397.
Crystallion, v. 135.
Ctesias, i. 150.
Ctesibius, ii. 184.
Ctesicles, vi. 279.
Ctesilaüs, vi. 179.
Ctesiphon, ii. 73.
Cuckoo, ii. 488, 489—thought to be a hawk, 488.
Cucubalus, v. 241.
Cucumber, cultivated, iv. 156–160, 210, 211—wild, 207, 208, 209—anguine or erratic, 209, 210.
Cucumber-fish, ii. 359.
Cucus, iii. 183.
Cuenca, i. 170.
Culeus, iv. 109.
Cultivation, modes of, by

various nations, iv. 60, 61, 62.
Cumæ, i. 196.
Cumania, ii. 21.
Cummin, iv. 193, 262, 263.
Cunicuius, ii. 349.
Cunila, ii. 548; iv. 195, 266, 267.
Cunila bubula, ii. 292; iv. 265, 266.
Cunila gallinacea, iv. 266.
Cunilago, iv. 266.
Cupidity for gold, vi. 91.
Cupping-glasses, vi. 51.
Cures, i. 233.
Curetes, ii. 231.
Curetis, i. 273.
Curia, vi. 213.
Curiatii, ii. 135.
Curio, the Elder, i. 269; ii. 147.
Curio, C., the amphitheatre of, vi. 350, 351, 352.
Curio's, the family of the, ii. 188.
Curius, Manius, iv. 8, 165.
Currant-tree, iii. 226.
Cursor, Papirius, iii. 469.
Curtius, his devotedness, iii. 311.
Curtius, Q., quoted, i. 134.
Cuscuta, iv. 56.
Cutlinæ, i. 235; v. 475, 495.
Cutleek, iv. 223, 224, 225.
Cuttings, iii. 486—propagation by, iii. 464.
Cuvier quoted, ii. 134, 136, 137, 139, 156, 244, 258, 262, 263, 266, 276, 278, 279, 280, 282, 283, 285, 288, 289, 290, 291, 302, 303, 304, 305, 307, 308, 311, 321, 350, 352, 359, 360, 361, 362, 364, 365, 367, 369, 377, 378, 379, 380, 382, 383, 384, 385, 386, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 415, 416, 417, 418, 419, 420, 422, 423, 424, 425, 426, 427, 428, 429, 431, 432, 434, 436, 437, 441, 443, 444, 445, 450, 451, 452, 453, 454, 455, 458, 459, 460, 461, 462, 463, 464, 466, 467, 471, 472, 474, 475, 476, 478, 479, 481, 482, 483, 484, 487, 488, 489, 490, 492, 500, 506, 507, 511, 512, 513, 514, 515, 516, 519, 522, 523, 526, 527, 528, 529, 530, 533, 544; iii. 1, 2, 3, 4, 10, 11, 16, 23, 25, 27, 29, 30, 31, 32, 33, 34, 35, 36, 37, 39, 42, 43, 45, 48, 50, 57, 58; iv. 189.
Cyamias, vi. 459.
Cyamos, iv. 347, 348.
Cyanæan Islands, i. 336.
Cyanos (plant), iv. 328.
Cyanos (stone), vi. 432.
Cybele, i. 492.
Cybiadis, ii. 488.
Cybium, ii. 386; vi. 21.
Cychramus, ii. 504.
Cyclades, i. 317.
Cyclaminos, v. 125, 126.
Cyclopes, i. 217; ii. 122, 223.
Cyclopean walls, i. 199—architecture, i. 284.
Cydius, vi. 275.
Cydnus, i. 448; v. 475.
Cydonea, i. 488.
Cydonia, iii. 202, 203.
Cyllene, i. 280, 287.
Cymæ, iv. 185, 239; v. 48.
Cyme, i. 472.
Cyna, iii. 118.
Cynægirus, vi. 248.
Cynamolgi, ii. 104, 295.
Cynapanxis, v. 49.
Cynips, iii. 351.
Cynips psenes, iii. 41.
Cynocephali, ii. 100, 130, 135, 348; vi. 434.
Cynocephalia, v. 429.
Cynoglossos, v. 110.
Cynoïdes, v. 135.
Cynomorion, iv. 455.
Cynopolis, i. 417, 418.
Cynopos, vi. 62.
Cynops, iv. 357.
Cynrrhodos, ii. 317—a cure for hydrophobia, v. 84.
Cynosbaton, iii. 207.
Cynosbatos, iii. 412; v. 49.
Cynosdexia, vi. 62.
Cynosorchis, v. 240.
Cynossema, i. 308.
Cynosura, ii. 539.
Cynozolon, iv. 407, 408, 409.
Cynthus, i. 319.
Cyparissa, i. 282.
Cyparissias, v. 180.
Cyperos, iv. 362, 363, 364.
Cypira, iv. 363.
Cypiros, iv. 359, 362.
Cypræa, or cowry, ii. 413.
Cypress, iii. 397, 398, 399; v. 7, 8.
Cyprinum, iii. 161, 163, 164, 165, 289.
Cyprinus, ii. 464.
Cypros, iii. 146.
Cyprus described, i. 480.
Cyprus, (the tree), iii. 146.
Cypseli, ii. 521.
Cyrenaica, i. 395; iii. 399; iv. 145, 146—the mice of, 350—the trees of, iii. 200.
Cyrene, i. 396, 397; iv. 431—destitute of grass, ii. 32, 33.
Cyrni, ii. 132.
Cyrus, i. 451, 472; ii 33, 70—his great memory; ii. 164.
Cyrus (the river), ii. 18.
Cythera, i. 312.
Cytheris, ii. 270.
Cythnius, ii. 477.
Cythnos, i. 318.
Cytinus, iv. 500.
Cytis, ii. 94.
Cytisus, iii. 208, 209.
Cyttitis, vi. 446.
Cytorus, ij. 4.
Cyzicus, i. 489; vi. 233.

D.

Dact, i. 329, 330; ii. 145.
Dacia described, i. 329.
Dactyli (fish), ii. 475.
Dactyli, Idæan, ii. 225.
Dactyliothecæ, vi. 390.
Dactylos, v. 73.
Dactylus (grape), iii. 320.
Dædalus, i 458; iv. 131—his inventions, ii. 226.
Daffodil, iv. 367.
Dahæ, ii. 34.
Daisy, iv. 328; v. 162.
Dalion, ii. 115.
Dalmatia described, i. 259.
Dama, ii. 347.
Damaratus, i. 190; vi. 229, 283.
Damascena, iii. 178, 295.
Damascus, i. 431, 432—the Seven Sleepers of, ii. 211.
Damasonion, v. 129, 130.
Damastes, i. 371.
Damion, iv. 302.
Damon, ii. 241.
Damophilus, vi. 284.
Damsons, iii. 178, 295.
Danaüs, ii. 233.
Dandagnda, ii. 47.
Dandelion, iv. 349.
Danger, prognostics of, from animals, ii. 294, 295.
Danube, i. 250, 262, 328; v. 481.
Danuvius, v. 481.
Daphnea, vi. 447.
Daphnoides, iii. 141; v. 57.
Dardæ, ii. 45.
Dardanelles, i. 305, 307.
Dardani, i. 272, 297.
Dardanum, i. 478.
Dardanus, i. 200.
Darius, ii. 27, 92—his chest of perfumes, iii. 159.
Dark, persons who could see in the, iii. 51.
Darnel, iv. 55, 442, 454.
Dascusa, ii. 19.
Dassaretæ, i. 272.
Dasypus, ii. 349, 543; iii. 61.

Dates, iii. 169, 172, 174–177—consecrated to the gods, 176—green, ill effects of, on Alexander's soldiers, 177.
Date-bread, iii. 169.
Date-palm, iii. 143.
Date-wine, iii. 169, 175.
Dathiathum, iii. 127.
Datis, vi. 248.
Daucus, v. 123.
Daulis, i. 277.
Daylight, how regulated, i. 105, 106.
Days, irregularity of, i. 50, 51—longest and shortest, 108, 109—how computed, 110 — in the year, vi. 162.
Davy, Sir H., quoted, vi. 240, 245.
Dead, closing the eyes of, iii. 53—remedies derived from, v. 292, 293.
Dead-nettle, iv. 404, 405.
Death, signs of, ii. 208—the greatest of blessings, ii. 219.
Deaths, sudden, ii. 213–217—happy, ii. 216—unhappy, 217.
Decapolis described, i. 431.
Decay, certain trees proof against, iii. 422.
Decii, v. 279.
Decius, P., iii. 343.
Deculo, ii. 554.
Decuman path, iii. 501.
Decuries of judges, vi. 82, 83.
Defrutum, iii. 246, 249, 269, 270.
Delian brass, vi. 151.
Deliratio, iv. 65.
Delos, i. 318, 319, 337, 338—the perfumes of, iii. 160.
Delphi, i. 277—laurel of, iii. 332.
Delta, i. 407.
Demetrius (artist), vi. 180.
Demetrius (geographer), vi. 385.
Demetrius (physician), ii. 355.
Demetrius Phalereus, vi. 159.
Demetrius Poliorcetes, i. 279; vi. 165, 266.
Democlides, iii. 158.
Democracy, ii. 227.
Democrates, Servilius, v. 420.
Democritus (artist), vi. 186.
Democritus, the philosopher, i. 149; ii. 219; v. 424—his foresight, iv. 95, 117—visits the East, v. 82—on plants, 64–68.
Demodamas, ii. 33, 115.
Demodes, iii. 157.
Demonnesos, i. 496.
Demosthenes, ii. 174.
Demostratus, vi. 467.
Demoteles, vi. 385.
Denarii, weight of, ii. 53.
Dendritis, vi. 461.
Dendroïdes, v. 180.
Denia, i. 170, 211.
Dentatus, M. Curius, ii. 153.
Dentatus, L. Siccius, ii. 170; iv. 393.
Dentifrices, v. 517; vi. 365.
Depilatories, iii. 265; v. 215, 465; vi. 55, 56.
Depth of the sea, i. 130.
Derbices, ii. 32.
Derceto, i. 439.
Dertona, i. 186.
Dessert, iii. 102.
Destinies at the birth of man, ii. 203.
Deuteria, iii. 251.
Dgiggetai, ii. 326.
Dia, i. 315.
Diachyton, iii. 250.
Diacodion, iv. 279.
Diadochos, vi. 447.
Diadumenos, vi. 171.
Diaglaucia, v. 247, 248.
Diagoras, iii. 158.
Dial in the Campus Martius, vi. 334, 335.
Diallage, vi. 412.
Dials, i. 106, 109.
Diamond, vi. 405, 406—dust of, vi. 464.
Diana, i. 408—Temple of, at Ephesus, i. 117; iii. 218, 423; vi. 343, 344, 375.
Diamum, i. 211.
Diapasma, iii. 166; iv. 366.
Diapason, i. 53.
Diaphragm, iii, 70.
Diatichon, vi. 372.
Diaxylon, v. 45.
Dibapha, ii. 448; iv. 326.
Dicæarchus, i. 95, 149.
Dichroïte, vi. 407.
Dictamnos, iv. 260; v. 115, 116.
Dies fasti, vi. 76.
Diet on figs, iv. 504.
Dieuches, iv. 302.
Digestion, v. 296.
Diglito, ii. 75.
Dill, iv. 274.
Dimensions of the earth, i. 143–146.
Dindymus, i. 489.
Dinochares the architect, i. 419; ii. 184; vi. 269.
Dinomenes, vi. 169, 181.
Diocæsarea, ii. 6.
Diocles, iv. 301.
Diodorus of Priene, ii. 357; iii. 338.
Diodorus the physician, v. 420.
Diodorus Siculus, i. 270—quoted, ii. 79.
Diodotus, Petronius, iv. 302.
Diogenes the Cynic, ii. 160.
Diognetus, ii. 115.
Diomedes, i. 227, 228, 265, 304 — birds of, ii. 526—tomb of, 526.
Diomedia, i. 265.
Dion of Colophon, ii. 357.
Dion Cassius quoted, i. 141, 264.
Dionysias, vi. 447.
Dionysius (artist), vi. 319.
Dionysius, physician, iii. 158.
Dionysius, Cassius, ii. 357, 555.
Dionysius Periegates, i. 372.
Dionysodorus, vi. 388.
Dionysomymphas, v. 66.
Diophanes, ii. 357.
Dioptase, vi. 410.
Dioscoron, i. 224.
Dioscurias, ii. 11.
Diospolis, i. 416.
Diospyron, v. 253, 254.
Diotimus, v. 369.
Diphryx, vi. 204, 205.
Diphyes, vi. 447.
Diponus, vi. 308, 309.
Dipsacos, v. 242, 243.
Dipsas, iv. 516.
Dirce, i. 291; vi. 318, 319.
Diribitorium, iii. 419; vi. 346.
Discobolus, vi. 173.
Discovery, voyages of, i. 98, 99.
Disease, new forms of, ii. 119; v. 152—various instances of, ii. 208.
Diseases, which affect certain classes, ii. 208—infinite in number, 209—of bees, iii. 22 of trees, 517–526, 527, 530— the most painful, v. 86, 87—of females, 210–214, 361–364 462, 463 — of infants, 364.
Disposition, influence of aliments upon, iv. 435, 436.
Distances, of the stars, i. 52—comparative, of places, ii. 108.
Dittander, iv. 195, 270.
Dittany, iv. 260, 261; v. 115.
Dium, i. 314.
Diver (bird), ii. 513.
Divers, ii. 527.

"Dives," the surname, vi. 129.
Divination, art of, ii. 179, 229, 230, 487.
Divisions of the globe, i. 151, 152.
Diyllus, ii. 242.
Dnieper, i. 331.
Dniester, i. 330.
Dodder, v. 174.
Dodecatheos, v. 88.
Dodona, i. 133, 272, 276; vi. 342.
Dogs, exposed, ii. 88—ruling as kings, 103—their fidelity, 312, 313—their memory, 314—their scent, 315—cross breeds of, 814, 315; and crocodiles of Egypt, 315—generation of, 316—of Laconia, 542—troubled with colic, iii. 71—their spitefulness, v. 114, 115—crucified, 391—remedies derived from, 391, 392.
Dog-burr, v. 71.
Dog-fish, ii. 377, 433, 456, 457, 458.
Dog-nettle, iv. 351, 352.
Dog-plant, v. 114, 115.
Dog-rose, v. 84.
Dog-star, i. 67.
Dog-wolf, ii. 279.
Dolichos, iii. 433.
Dolium, iii. 221, 269.
Dolopes, i. 275.
Dolphin, ii. 461; vi. 35, 36—attacks the crocodile, ii. 288, 289—described, 368-371—its love for human beings, 372, 373, 374—its love for music, 374—helps men to fish, 374, 375, 376—other marvels relative to, 376, 377—of the Ganges, 384.
Domitianus, the Emperor, i. 8; vi. 144, 370.
Don, ii. 14.
Donax, v. 36; vi. 58.
Dongola, ii. 99.
Donusa, i. 321.
Dorade, ii. 397; vi. 19.
Dorcas, ii. 352.
Doripetron, v. 173.
Doris (country), i. 293.
Doris (plant), iv. 410.
Doriscus, i. 305.
Dormice, ii. 351, 352.
Dorotheus, iii. 157.
Dorsal spine, iii. 63.
Dory, ii. 404.
Doryclium, v. 303.
Dorylæum, i. 471.
Doryphoros, vi. 171.
Dosiades, i. 372.
Dositheus, iv. 127.
Dossennus, i. 275.
Douching, v. 108.
Douma Thebaica, iii. 143.
Draave, i. 263.
Draconitis, vi. 447.
Dracontium, v. 57, 58, 60.
Dracunculus, v. 37, 57, 58, 60; vi. 62.
Dragon, or serpent, v. 395—its enmity to the elephant, ii. 258—its size, 261—where found, 261—its crest, 261; iii. 43—man saved by a, ii. 273.
Dragon's-blood, vi. 121, 245.
Draining, iii. 448.
Draus, i. 263.
Dreams, ii. 165—signification of, ii. 553—what animals are subject to, ii. 553—at will, v. 317.
Drepana, i. 218.
Drepanis, iii. 90.
Drepanum, i. 217.
Drilo, i. 260.
Drink, abstinence from, iii. 99—perfumes in, iii. 168.
Drinking, of animals, ii. 550—for wagers, iii. 366.
Drinking-horns, iii. 45.
Drones, iii. 10, 11.
Droppings from leaves, iii. 474, 475.
Dropsy, ii. 159; v. 198, 199, 356, 458; vi. 49.
Drosolithos, vi. 452, 460.
Druggists, their fraudulence, vi. 195—their ignorance, 223.
Drugs, varying prices of, vi. 143, 144.
Druids, iii. 435, 436; v. 42, 390, 426.
Drunkard, described, iii. 272.
Drunkenness, described, iii. 270-274—antidotes to, 526; iv. 237, 513.
Druppa, iii. 154, 279.
Drusillanus Rotundus, vi. 134.
Drusus, ii. 162; iii. 19; iv. 185; v. 98, 328.
Dryitis, vi. 459.
Dryophonon, v. 243.
Dryopteris, v. 243.
Drypetis, iii. 279.
Dubius Avitus, vi. 167.
Ducks of Pontus, v. 79.
Ductility of gold, vi. 96.
Dugong, iii. 57.
Dugs of animals, iii. 82, 83.
Duillius, Caius, vi. 157.
Dulce, iii. 250.
Dulichium, i. 311.
Dung-beetle, iii. 34.
Dunghill, plant growing upon, v. 69.
Dupondius, vi. 89.
Durability of wood, iii. 423, 424.
Duracinus grape, iii. 220, 232.
Duracinus peach, iii. 294.
Duration of life, prognostics of, iii. 96.
Duris, ii. 241.
Dust productive of worms, iii. 41.
Dwarfish and deformed tribes, ii. 131.
Dwarfs, ii. 157; iii. 91.
Dyeing, ii. 224; iii. 392; iv. 138, 390, 391, 409; v. 193; vi. 28, 362—walnuts used for, iii. 316.
Dyers' weed, vi. 108.
Dyme, i. 280.
Dyris, i. 381.
Dyrrhachium, i. 227, 261.
Dysentery, remedies for, v. 441, 442.

E.

Eagles described, ii. 481, 508; v. 513—different kinds of, ii. 481-484—their characteristics, 484—the figure of, used as the Roman standard, 485, 486—fight with dragons, 486—affection shown by, 486—incubation of, 539.
Eagle-fish, ii. 411.
Eale, ii. 279.
Eared plants, iv. 357.
Earrings, costly, iii. 48.
Ears, people without, ii. 103—large, 134—particulars relative to, iii. 48, 49—tingling of the, v. 284—diseases of, 337, 338, 416, 417, 418; vi. 33, 34.
Earth, nature of the, i. 91-94—form of, 94—if surrounded by the Ocean, 98, 99, 100—what part inhabited, 100-103—middle of the world, 102—prodigies connected with, 115, 116—dimensions of, 143, 144—smell of, iii. 167—new and spontaneous productions of, 399—flavour of, 451.
Earthenware, vi. 286, 287.
Earthquakes, i. 111-116, 471, 472, 473.
Earths, various kinds of, iii. 452, 453, 454—how washed, vi. 298, 299—of

Egypt, 237 — of Eretria, 239, 298—of Ebusus, 303—of Galata, 303.
Eastern Ocean, ii. 33.
Ebony, iii. 108, 109; v. 37.
Ebro, i. 361.
Ebulum, v. 127, 198.
Ebusus, i. 211, 212, 404; vi. 303.
Ecbatana, ii. 88.
Ecbolas, iii. 263.
Ecdippa, i. 434.
Echecrates, his mare, ii. 543.
Echeneïs, ii. 412, 413, 414; vi. 2, 3—used in enchantments, ii. 413, 414.
Echeon, v. 412.
Echinades, i. 274, 310.
Echinopodes, iii. 7.
Echinus, i. 322.
Echios, v. 120.
Echis, iv. 410.
Echites, v. 56.
Echitis, vi. 459.
Echo, sevenfold, vi. 345.
Eclipses, i. 31, 34, 36–39, 62—where visible, 104, 105—of the sun, vi. 450.
Ecnephias, i. 79.
Ἐκτραπέλοι, ii. 158.
Ectypa, vi. 284, 454.
Edessa, i. 443.
Edonus, i. 309.
Eels, ii. 408, 409.
Eelskins used for flogging, ii. 411.
Egagropile, iii. 72.
Egelasta, v. 502.
Eggs, purification with, ii 487—various kinds of, 532–538 — augury derived from, 535, 536 — hatched by artificial heat, 536—how best kept, 539—sucked by serpents, 548, 549—remedies derived from, v. 585–588.
Eggshells, superstition as to breaking, v. 282.
Eglantine, iii. 412; iv. 310, 311, 313; v. 48, 49, 84.
Egnatia, i. 227.
Egypt, described, i. 406, 416—routes through, to the Red Sea, ii. 63, 64, 65—its trees, iii. 180 — its grapes, 246—its beer, 274—its modes of cultivation, iv. 61—the cruelty of its kings, v. 155—marvellous works in, vi. 334–341.
Egyptian thorn, iii. 183; v. 43—plum-tree, iii. 184—earth, vi. 237—jasper, vi. 429.
Elæomeli, iii. 290; iv. 494.
Elam, ii. 68.
Elaphites, i. 267.
Elaphoboscon, iv. 422, 423; v. 115.
Elaphonnesus, i. 496.
Elate, iii. 155; iv. 495, 496.
Elatea, i. 292.
Elaterium, iv. 207–210.
Elatine, v. 243, 244.
Elatus, v. 475.
Elba, i. 214, 348.
Elder, iii. 411, 412; v. 23, 24.
Elecampane, iv. 167, 168, 222.
Electricity, i. 84.
Electrides, i. 266, 352, 397, 398.
Electrum. *See* "Amber."
Electrum (metal), vi. 105.
Electuary, v. 52.
Elelisphacus, iv. 449, 450.
Elements, i. 18, 19—three, destitute of taste and smell, iii. 324.
Elenchi, ii. 435.
Elephants, mentioned, i. 9; v. 308—an account of, ii. 244–259 — their notions of religion, 244, 245 — when first harnessed, 245—bastard kind of, 245—trained to dance, 245—on the tight rope, 246—their docility, 247—wonderful feats by, 247—their instinct, 248—used in war, 249—their modesty, 250—their love for women, 250 — their regard for justice, 251—when first seen in Italy, 251—fights by, in the Circus, 252, 253, 254—combats of, 252, 253—their appeals to human sympathy, 254 — their merciful disposition, 255 — how caught and trained, 255, 256 — how hunted, 256—African and Indian, 257—their gestation, 258 — their teeth and tusks, 259 — where found, 259—their enmity to the dragon, 259—their sagacity, 260—their teeth, iii. 58, 59—their hide, 80—their voice, 94.
Elephantiasis, v. 152, 154, 155, 311.
Elephantis, v. 369.
Eleusis, i. 289.
Elentheræ, i. 291, 314.
Elicius, Jupiter, i. 84.
Elis, i. 281.
Elk, ii. 263.
Elleborine, v. 244.
Elm, iii. 370; v. 22, 23—the wood, its uses, iii. 422—propagation of, 467, 468.
Elops, ii. 389.
Elpenor, tomb of, iii. 329.
Elpis and the lion, ii. 271.
Elymais, ii. 68.
Emathii, i. 297.
Embalming the dead, iii. 63, 161; v. 8.
Embassy from Rome to Alexander the Great, i. 194.
Emblems, vi. 322.
Emboliaria, ii. 263.
Embroidery, ii. 337.
Emeralds, vi. 409–413.
Emerita, i. 365.
Emery, vi. 464.
Emesa, i. 439.
Emmaus, i. 428.
Emodian Mountains, ii. 38, 42.
Empedocles, iii. 100.
Emperors, Roman, deified, i. 181.
Empetros, v. 244.
Empirics, sect of, v. 372.
Emporetica, iii. 189.
Emydes, vi. 15.
Encardia, vi. 448.
Encaustic, vi. 234, 272, 273, 282.
Enchanters, ii. 126, 127 — their influence on the moon, i. 31.
Enchantments, remedies for, v. 331, 332. *See also* "Magic," &c.
Enchrysa, iv. 410, 411.
Endive, iv. 182, 183, 233, 234, 235.
Endymion, i. 31.
Engadda, i. 431.
Engedi, i. 431.
Engraving, ii. 184.
Enhæmon, iii. 134, 135; iv. 485.
Enhydris, v. 430; vi. 23, 35.
Enhygros, vi. 460.
Eningia, i. 344.
Enipeus, i. 295.
Enna, i. 219.
Enneacrunos, i. 289; v. 491.
Enneaphyllon, v. 245.
Ennemoser's "History of Magic," quoted, ii. 127.
Ennius, ii. 176.
Enorchis, vi. 448.
Entertainments, wine used at, iii. 254, 255.
Entrails, inspection of, iii. 66–70—head of the, 68.
Eon, iii. 203, 204.
Epaminondas, i. 286.

Ephedra, v. 166.
Ephemera, iii. 42.
Ephemeron, v. 147, 148.
Ephesus, i. 468—Temple of Diana at, 117; iii. 218, 423; vi. 343, 344, 375—wine of, iii. 246.
Ephialtes, ii. 316.
Ephippus, iii. 157.
Ephorus, i. 371.
Ephyre, i. 279.
Ephyri, i. 275.
Epicharmus, iv. 302.
Epicurus, his garden, iv. 150 — portraits of him worn, vi. 224, 225.
Epidamnum, i. 261.
Epidaurus, i. 260. 284, 285.
Epidius, C., iii. 535.
Epigenes, i. 149.
Epiglossis, iii. 62.
Epilepsy, v. 196, 197, 353, 354, 451, 452, 453; vi. 47—in quails, ii. 505.
Epileus, ii. 488.
Epimedion, v. 244, 245.
Epimelas, vi. 449.
Epimenides, ii. 211.
Epipactis, v. 244.
Epipetron, iv. 349, 350.
Epiphaneia, i. 440.
Epiphania, i. 444.
Epirus described, i. 271—oxen of, ii. 327.
Epithymon, v. 174, 175.
Epodes, vi. 65.
Equestrian order, particulars connected with, vi. 83–86.
Equestrian statues, vi. 156, 160.
Equisætis, iv. 91; v. 203, 204.
Equisætum, v. 203, 204.
Equites, inspection of the, iii. 384—particulars connected with, 83–86.
Equus hemionus, ii. 326.
Equus October, v. 327, 328.
Erannoboas, ii. 43.
Erasistratus, ii. 182; iii. 100; v. 372.
Eratosthenes, i. 150.
Erebinthus, i. 496.
Eretria, i. 317.
Eretrian earth, v. 239, 298.
Ergastula, iv. 9.
Erica, iii. 201; v. 28.
Ericæum, iii. 14.
Eridanus, i. 243.
Erigeron, v. 146, 147
Erigonus, vi. 280.
Erineon iv. 507.
Erinna, vi. 173.
Eriophorus, iv. 142.
Eriphia, v. 67, 68.
Erithace, iii. 7.
Erithacus, ii. 511.
Ermine, ii. 368.
Eros, Staberius, vi. 302.
Erotylos, vi. 448.
Eructation, absence of, ii. 160.
Ervilia, iv. 23, 52.
Ervum, iv. 451, 452.
Erymanthus, i. 287.
Eryngium, iv. 396, 397.
Erysimum, iv. 36, 453, 454.
Erysipelas, iv. 213; v. 199, 200, 357, 456; vi. 49.
Erysisceptrum, iii. 146, 147; v. 45.
Erysithales, v. 205.
Erythallis, vi. 448.
Erythia, i. 369.
Erythinus, ii. 391, 467, 468; vi. 57.
Erythræ, i. 469.
Erythræa, i. 369.
Erythraicon, v. 191.
Erythras, ii. 66, 87.
Erythrodanus, v. 38, 39.
Eryx, i. 218, 219.
Esseda, vi. 215
Essedones, i. 335; ii. 34, 123.
Essenes, i. 430, 431.
Este, i. 252.
Eternity of matter, iii. 450.
Etesiaca, iii. 229.
Etesiæ, i. 76, 77.
Etesian stone, vi. 367.
Etruria described, i. 186.
Etrurian observations on thunder and lighting, i. 81–85.
Euagon of Thasos, ii. 357.
Euanthes, ii. 355.
Eubœa described, i. 316.
Eubulides, vi. 186.
Euchir, ii. 232; vi. 187, 283.
Euciase, vi. 413.
Eucles, v. 131.
Euclid, i. 149.
Eucnemos, vi. 183.
Euctemon, iv. 128.
Eudemus, v. 378.
Eudicus, v. 523.
Eudoxus of Cnidos, i. 78, 149.
Eudoxus of Cyzicus, ii. 114.
Euganei, i. 254, 255.
Eugenia, iii. 224
Euhemerus, vi. 385.
Eulæus, ii. 62, 79, 80.
Eumachus. i. 371.
Eumeces, vi. 448.
Eumenes, King, i. 308—invents parchment, iii. 186.
Eumithres, vi. 448.
Eunicus, vi. 185.
Eunuchs, iii. 47, 81, 92; v. 31; vi. 139.
Euonymos, iii. 203.
Eupatoria, ii. 5.
Eupatoria (plant), v. 103.
Eupetalos, vi. 448.
Euphorbia, i. 383; iv. 228, 264, 278, 281; v. 14, 15, 54, 68, 107, 108, 177–190, 261.
Euphorbus, v. 108.
Euphranor, vi. 169, 181, 274, 275, 303.
Euphrates, i. 441, 446; ii. 72.
Euphron, iii. 158.
Euphronius, ii. 357.
Euphrosynum, v. 109.
Euponpus, vi. 174, 255.
Eureos, vi. 448.
Euripi, ii. 253; vi. 270.
Euripice, iv. 364.
Euripides, iv. 423; vi. 467.
Euripus, i. 292, 316, 323.
Europa and Jupiter, iii. 105.
Europe, the boundaries of i. 153—the gulfs of, 153—islands of, 210—north of, described, 339—measurement of, 369.
Europus, ii. 28.
Eurotas, i. 283.
Eurotias, vi. 448, 449.
Eurus, i. 73; iv. 116.
Eurymedon, i. 453.
Eusebes, vi. 449.
Euthycrates, vi. 170, 176.
Euthymus, deified in his life-time, ii. 199.
Eutychides, vi. 170, 319.
Eutychis of Tralles, ii. 137.
Euxine, i, 326, 338—described, ii. 1—islands of, ii. 22.
Euxinidas, vi. 255.
Evacuations, an animal that has no passage for the, iii. 40. 41.
Evander, i. 286; vi. 162.
Evenus, i. 275.
Evergreens, iii. 373, 374.
Evil eye, ii. 127.
Evonymitæ, ii. 100.
Exacum, v. 104.
Excæcaria agallochum, iii. 115.
Excellence, man of the greatest, ii. 179.
Excretions, human, remedies derived from, v. 294, 295.
Exebenus, vi. 44.
Exedum, v. 71.
Exercise, v. 296.

Exocœtus, ii. 406.
Exonychon, v. 253, 254.
Expiations for lightning, iii. 302.
Extraction of substances from the flesh, v. 461, 462; vi. 51.
Eye, a beast that kills with the, ii. 281.
Eyes, particulars relative to the, iii. 49—colour of, 50, 51 — seeing in the dark, 50, 51, 53—expressive of the character, 51, 52—pupils of, 52, 53—diseases of, 53—of certain animals will grow again when removed, 54 — remedies for diseases of, v. 136, 335, 336, 411–416; vi. 29, 30.
Eye-brows, iii. 49.
Eye-lashes, iii. 54—fall of, with some persons, 54.
Eye-lids, iii. 54, 55—affections and diseases of the, v. 410, 411; vi. 29, 30, 31.

F.

Fabaria, i. 344.
Fabariæ, iv. 45.
Faber (fish), ii. 404.
Fabianus, i. 148.
Fabii, family of the, ii. 188; vi. 230.
Fabius Maximus, iv. 393—saves Rome, iv. 393.
Fabricius, vi. 137, 138, 161.
Fabrics that rival flowers in colour, iv. 326, 327.
Fabulous birds, ii. 530.
Face, iii. 49—diseases of, v. 340, 341, 342—remedy for spots on, v. 432, 443; vi. 35.
Factio, ii. 217, 505.
Factus, iii. 296.
Facundus Novus, vi. 334, 335.
Fæcatum, iii. 251.
Fagutal, iii. 355.
Falconry, in an early state, ii. 488.
Falernian wine, iii. 240, 254; iv. 270, 271.
Falernum, i. 195.
Falisci, i. 188.
Fallow deer, iii. 44.
False incense, iii. 356, 357.
Famine at Casilinum, ii. 351.
Famous trees, iii. 432, 433.
Fangs of serpents, iii. 57, 58.
Fannius Palæmon, iii. 188.
Far, iv. 19, 24, 31, 32, 33.
Farfarum, v. 54, 55.
Farfugium, v. 54, 55.
Farina, iv. 33.
Farm-house, iv. 13, 14, 15.
Farm-steward, iv. 15.
Farnese Bull, vi. 319.
Farrago, iv. 20, 52.
Farreum, iv. 5.
Fascinations, ii. 127.
Fascinus, v. 290.
Fasti, vi. 76.
Fat, iii. 76—drawn off, iii. 76—various kinds of, v. 324, 325, 326.
Fatui, v. 256.
Fauces, iii. 64.
Fauces Candinæ, i. 229.
Fauni, ii. 316.
Fausta, her fecundity, ii. 135.
Faustian wine, iii. 240.
Faventia, i. 242.
Favenza, i. 242.
Favonius, i. 74; iv. 116.
Fear, iii. 80.
Feathers of the eagle consume those of other birds, ii. 486.
Fecundation of trees, iii. 381.
Fecundity, ii. 135, 136, 137.
Federate towns, i. 155.
Fée, M., his labours on Pliny, iii. 105; v. 272.
Feeding of animals, diversities in the, ii. 548.
Feet, iii. 89 — of birds, ii. 490; iii. 90—of animals, from two to a hundred, 91—diseases of the, v. 192, 352, 353, 447, 448.
Fel terræ, v. 104.
Felt, ii. 335.
Feltre, i. 252.
Female sex, remedies derived from, v. 301, 302.
Females, once pregnant only, ii. 130 — in what cases more courageous than males, iii. 92—diseases of, v. 210, 211, 212, 360–364, 462, 463; vi. 53, 54, 55.
Fenestella, ii. 354.
Feniculum, ii. 293.
Fennel, iv. 296, 297.
Fennel-giant, iii. 204, 205; iv. 198, 199, 298, 299.
Fenugreek, v. 74, 75.
Ferentum, i. 230.
Fern, v. 245, 246.
Feronia, i. 188.
Ferret, ii. 349; v. 392.
Ferula, iii. 204, 205.
Ferulaceous plants, iv. 198.
Fescennia, i. 189.
Fescennine songs, iii. 315.
Fetialis, iii. 436.
Fevers, remedies for, v. 197, 198, 354, 355, 453–456; vi. 47.
Fezzan, i. 398.
Fibulæ, vi. 74, 87.
Ficarii, iii. 41.
Ficedula, ii. 511.
Ficus religiosa, ii. 129.
Ficus sycamorus, iii. 180.
Fidenæ, i. 206.
Fidentia, i. 242.
Fidustius, M., ii. 189.
Field mice, i. 68; ii. 351.
Field nard, iv. 318, 319.
Figs, iii. 178, 307–311, 313, 531; iv. 502–507 — the cause of a war, iii. 309, 31 —Indian, 109, 110—of Alexandria, 180—of Cyprus, 181 — wine made from, 257.
Figures, natural, in stone, vi. 309.
Filberts, i. 198, 199; iii. 316.
Filicula, v. 175.
Filix, v. 245, 246.
Filters for wine, iii. 270.
Fine flour, iv. 442, 443.
Fingers, iii. 86—peculiarities in the, 86—maladies of the, v. 458.
Fins of fish, ii. 408.
Fir, iii. 357, 359—gigantic, iii. 419.
Fire, the marvels of, i. 141, 142, 143; vi. 383—how first preserved, ii. 226; iii. 206—animal found in, iii. 42 — obtained from wood, iii. 421—prognostics derived from, iv. 122.
Firmus, iv. 205.
Fiscus, ii. 171.
Fish, tame, i. 317—diet on, ii. 134 — their faculties, 367, 368, 369—species of, how many, 381—the largest, 381, 382—not found in the Euxine, 387, 388—why they leap above the surface, 390—auguries derived from, 391—that have no males, 391, 392—that have a stone in the head, 392, 393 — that conceal themselves during the winter, 393, 394—that are taken at stated times only, 395 — that conceal themselves in summer, 396—pickled alive, 403—enormous prices of, 403—

not everywhere equally esteemed, 404—their gills and scales, 405, 406—that have a voice, 406—that come on land, 406, 407—time for catching them, 407—classification of, 407—their fins and modes of swimming, 408—flat, 411—that fly, 415—that shine at night, 415—destitute of blood, 416—soft, 416—maladies of, 460, 461—generation of, 460, 461–465—that are both oviparous and viviparous, 465, 466—peculiarities in their spawning, 466—that impregnate themselves, 466—aged, 467—that come on land, 471, 472—that have the best hearing, 547—tame, 547—that have the finest sense of smell, 547—teeth of, iii. 57—bones of, 77—how poisoned, v. 118—consulted, 480—poisonous, 480, 481, 482—instincts of, vi. 7—marvellous properties of, 8—that eat from the hand, 8—oracular responses by, 8, 9—that are bitter, salt, or sweet, 9, 10—glue made from, 31, 32.
Fishermen, hardiness of, v. 511.
Fish-preserves, ii. 467, 469, 547.
Fistula, remedies for, v. 200.
Fitches, iv. 46, 51, 451, 452.
"Flaccus," the surname, iii. 48.
Flamen, iv. 44—Dialis, v. 327, 328.
Flamens, apex of the, iv. 430.
Flamingo, ii. 528, 529, 530.
Flammeum, iv. 327.
Flanatic Gulf, i. 251.
Flavius, Cnelus, iii. 156; vi. 76, 77.
Flavus, Alfius, ii. 476.
Fleawort, v. 135.
Flexible glass, vi. 381.
Flight of birds, ii. 504, 506, 520.
Flies, produce maggots, ii. 546—when drowned, come to life, iii. 43—rub their eyes, 91.
Flint, vi. 360, 371, 372, 448.
Floating islands, i. 122, 123.
Floating of dead bodies, ii. 158.
Flock, iv. 134.
Floralia, iv. 99.
Florence, i. 189.
Flour, iv. 33, 34.
Flower of Jove, iv. 333, 337.
Flower of salt, v. 506, 507.
Flower of wine, iii. 269.
Flowers, the colours of, iv. 304, 317, 326, 327—their odours, 321–323—the blossoming of, 336, 337, 338—duration of, 339.
Fluor spar, vi. 392, 394, 433.
Flute reeds, iii. 405, 408.
Flutes, treble and bass, iii. 408.
Fly-catcher, ii. 511.
Flying-fish, ii. 415; iii. 81.
Foal-foot, iii, 121, 122.
Fœtus, how formed, iii. 64.
Foliatum, iii. 165.
Food, abstinence from, iii. 99—prognostics derived from, iv. 125.
Forcing-beds, iv. 156.
Forehead, iii. 49.
Foreknowledge of the future in sleep, ii. 553.
Formacean walls, vi. 289.
Formation of insects, ii. 45.
Formenters, i. 211.
Formiæ, i. 194.
Formulæ, v. 279–283, 286.
Fornacalia, iv. 4.
Fortunate Islands, i. 367, 368; ii. 107.
Fortune, worshipped as the great divinity, i. 23—statue of, ii. 338—temple of, vi. 171.
Forum of Augustus, ii. 215.
Forum Boarium, vi. 151.
Forum Julii, i. 178.
Fossils, i. 322; vi. 358, 360.
Fountains and rivers, wonders of, i. 131–138.
Fowls, the best kinds of, ii. 536—diseases of, 536.
Foxes, their craftiness, ii. 295.
Fox-glove, iii. 121.
Fraces, iii. 286.
Frankincense, iii. 124–129—carriage and high price of, 128, 129.
Frantic laurel, iii. 431, 432.
Frescoes, vi. 291.
Free towns, i. 155.
Freedmen, who have become famous, vi. 301, 302.
Free-stone, vi. 368.
Frejus, i. 178.
Fresh water in the sea, i. 479.
Friendships of animals, ii. 551, 552.
Frisii, i. 349.
Friuli, i. 253.
Frogs, vi. 21, 22, 32, 34, 35, 38, 39—the generation of, ii. 462, 463—dumb, 353—the tongue of, iii. 61, 62.
Frog-fish, ii. 452.
Fruiting of trees, iii. 384, 385.
Fruits, wines made from, iii. 256, 257—foreign, 297–300—modes of keeping, 303–307—juices of, 323–326, various natures of, 326, 327, 328.
Fucinus, i. 232.
Fucus, iii. 209—ericoides, 210—vesiculosus, 210—avarice, 210.
Fuel, wood for, iii. 348, 349.
Fugitive stone, vi. 344, 345.
Fuller quoted, vi. 387.
Fulling, ii. 224; vi. 300, 301.
Fulvius, L., ii. 190.
Fumitory, v. 142.
Fundament, remedies for diseases of, v. 187, 350, 351, 445; vi. 44.
Fundanian wine, iii. 241.
Funerals, perfumes burnt at, iii. 137.
Funereal games, ii. 232.
Fungi, iii. 351, 352; iv. 429, 430, 431.
Furunculi, v. 200.
Fuseli quoted, vi. 235.
Fustic, iii. 371.

G.

Gabalium, iii. 142.
Gabbaras, the giant, ii. 157.
Gabienus, his death, ii. 213.
Gabii, i. 201.
Gabinius, i. 376.
Gadara, i. 432.
Gades, Straits of, i. 151, 152, 210, 368.
Gadfly, iii. 35—becomes blind, iii. 42, 43.
Gadis, i. 368.
Gæanis, vi. 456.
Gaëta, i. 194.
Gagæ, i. 455.
Gagates, vi. 361, 362.
Gait, iii. 89.
Galactite, vi. 449.
Galatia described, i. 491.
Galaxias, i. 449.
Galba, Sulpicius, vi. 385.
Galbanum, iii. 152; v. 10.
Galen quoted, i. 111—an opinion of, alluded to, ii. 152, 153.
Galena, vi. 112, 118, 212, 218.
Galeobdolon, v. 246.

Galeopsis, v. 246.
Galeos, v. 12, 63.
Galerita, iii. 43.
Galgulus, ii. 506, 515, 548; v. 452.
Galion, v. 246.
Gall, iii. 68, 69; v. 327, 328 — animals destitute of, iii. 68—of extraordinary size, 68—persons without it, 69—double, 69—of the bull, 69.
Gallæcia, i. 363.
Gallaica, vi. 449.
Galli castrate themselves, iii. 92.
Gallia, Narbonensis, i. 174—Togata, 237—Belgica, 353.
Gallic nard, iv. 369, 370.
Gallic Ocean, islands of, i. 349.
Gallidraga, v. 249.
Gallio, Annæus, v. 496.
Gallipoli, i. 225, 305, 307, 308.
Gallnut, iii. 350; v. 5.
Gallus, Ælius, ii. 90.
Gallus, river, i. 493; v. 474.
Gallus, Sulpicius, i. 36, 147.
Gamala, i. 427.
Gamecocks, ii. 498.
Games, sacred, iii. 343.
Gamphasantes, i. 405.
Gander, ii. 499.
Gangaridæ, ii. 44.
Ganges, ii. 43, 131.
Gangites, ii. 484.
Gantæ, ii. 499.
Garama, i. 399.
Garamantes, i. 392, 401, 404, 405.
Garden, pleasures of the, iv. 149—154.
Garden-grounds, laying out of, iv. 154.
Gardens, statues in, iv. 150.
Gargara, i. 474, 475
Garlands, iv. 304—309, 329, 330, 333, 354.
Garlic, iv. 174, 175, 176, 225—228.
Garnet, vi. 420, 421.
Garum, ii. 403; iv. 227; v. 507, 508.
Gassinade, vi. 449.
Gates of Rome, i. 203.
Gaugamela, ii. 71.
Gauls, invasion of Asia by, i. 492—their invasion of Italy, iii. 103 — besiege Rome, vi. 75, 76.
Gausapa, ii. 333, 335.
Gaza, i. 423.
Gazæ, ii. 28.
Gazelle, ii. 347, 352.
Gebanitæ, iii. 128, 129, 130.
Gecko, ii. 299; iii. 31.
Gedrosi, ii. 360.
Gedrosia, ii. 50—trees of, iii. 115.
Gedrusi, ii. 59.
Geese, hatching of, ii. 538.
Gegania, vi. 152.
Gela, i. 219.
Gelduba, iv. 166.
Gellianus, i. 269.
Gellius, Cneius, ii. 239.
Geloni, i. 335.
Gelotophyllis, v. 66.
Gemitorian Steps, ii. 314.
Gemursa, v. 155.
Generals, exhibitions by, of their victories, vi. 233, 234.
Generation, ii. 144, 149, 150, 152, 153, 540—544.
Genesara, Lake of, i. 429.
Geneva, Lake of, i. 175.
Genita Mana, v. 391.
Genitals, remedies for diseases of, iii. 350, 351; v. 445, 446; vi. 45.
Genius, men of, ii. 173.
Gennesareth, Sea of, i. 429.
Genoa, i. 185.
Genre-painters, vi. 268.
Gentian, v. 105, 106.
Gentia, i. 184—wines of, iii. 242.
Gemini, iii. 59.
Geodes, vi. 360, 364, 365, 444, 446, 449, 456—enhydros, 460.
Geometry, ii. 183.
Ger, i. 382.
Gerræstus, i. 316.
Geranion, v. 195.
Geranitis, v. 459.
Gergitha, i. 474.
Germ, iii. 496.
Germanicus, i. 469; ii. 319, 320; v. 85—his death, iii. 67.
Germany described, i. 345.
Germination of fruit, iii. 382—of trees, iii. 381, 382.
Gerra, ii. 84.
Gerres, vi. 62.
Gerrhæ, v. 501.
Gerricula, vi 62.
Geryon, i. 369.
Geskleithron, ii. 123.
Gesoriacum, i. 350, 353.
Gestatio, v. 296.
Gestation, period of, ii. 139, 140.
Getæ, i. 329.
Geum, v. 166.
Ghauts, ii. 46.
Gibbon's History, quoted, i. 346, 348.
Gibraltar, i. 152.
Gigantic trees, iii. 419, 420.
Gilding, vi. 98, 99, 124, 295—frauds committed in, vi. 114.
Gills of fish, ii. 367, 405, 406.
Gilthead, ii. 395; vi. 19.
Ginger, iii. 112.
Gingidion, iv. 219, 220.
Ginnus, ii. 326.
Ginseng, iv. 285.
Giraffe, ii. 277.
Girasol opal, vi. 437, 456.
Gith, iv. 195, 270, 271.
Gladiators, their combats painted, vi. 246 — their mode of cure, vi 384.
Gladiolus, iv. 359; v. 134.
Glæsaria, i. 344; vi. 401.
Glæsariæ, i. 351.
Glæsum, vi. 401.
Glanis, ii. 452.
Glans, iii. 341, 345.
Glass, i. 434—broken, how to mend, v. 388—the discovery and manufacture of, vi. 379—382.
Glastum, iv. 389, 390.
Glauce, ii. 498.
Glaucias, iv. 303.
Glaucides, vi. 187.
Glaucion, the artist, vi. 276.
Glaucion (plant), iv. 278; v. 247, 248.
Glauciscus, vi. 53.
Glaucus, ii. 396.
Glaux, v. 247.
Glecinum, iii. 289; iv. 492.
Globe, divisions of the, i. 151, 152.
Glossopetra, vi. 449.
Glottis, ii. 504.
Glow-worm, iii. 34.
Glue, iii. 427; v. 358.
Gluttony, v. 169, 297.
Glycera, iv. 305; vi. 273.
Glycyrrhiza, iv. 351, 399, 400; v. 217.
Glycyside, v. 88, 89, 248, 249.
Gnaphalium, v. 249.
Gnats, iii. 2, 42; v. 469.
Gnesios, ii. 483.
Gnu, ii. 282.
Goats, ii. 339—their propagation, 339, 340 — their intelligence, 340—shearing of, 341—not sacrificed to Minerva, 342—destructive to trees, 342—suckled by birds, 521 — collect

laudanum on their beard, iii. 133; v. 171.
Goat-lettuce, iv. 228.
Goatsucker, ii. 521.
Goblets, wooden, iii. 420.
God, opinions upon the existence of, i. 20–25.
Gods, plurality of, i. 20, 21—their respective trees, iii. 102.
Goitre, vi. 402.
Gold, a place where it is buried in the earth, ii. 79—excavated by ants, iii. 39; vi. 99, 442, 443—an account of, 69, 70—its first recommendation, 71—rings made of, 71–75, 76–82—quantity of, possessed by the ancients, 75, 76—crowns made of, 86—uses made of by females, 87, 88—cupidity for, 91, 92, 93—coronets made of, 94, 95—high value set upon, 96, 97, 98—cloth of, 98—how found, 99–104—statues made of, 105, 106—remedies derived from, 106, 107.
Golden Fleece, vi. 94.
Golden Horn, i. 307; ii. 388.
Golden Palace of Nero, vi. 95, 185, 271, 349, 370.
Gold-mines, ii. 22, 123, 225; vi 99 104.
Goldsmiths, iv. 37.
Golgi, i. 481.
Gonger, vi. 62.
Gontæa, vi. 450.
Good fortune in the same family, instances of, ii. 187, 191, 199.
Goose, its liver artificially increased, ii. 344—its asserted bashfulness, 496—its vigilance, 498—saves the Capitol, 498; v 301—sacred, ii. 498—falls in love, 498—its wisdom, 499—its feathers, 499, 500.
Gooseberry, v. 49.
Goosefoot, v. 246.
Goosegrass, v. 71, 227, 390, 391.
Gordian Knot, i. 490.
Gordiucome, i. 490.
Gordium, i. 492.
Gorgades, ii. 106.
Gorgasus, vi. 284.
Gorgias, vi. 106.
Gorgonia, vi. 450.
Gorgonius, i. 212.
Gortyna, i. 230, 314.
Gossypium, iv. 134, 135; v. 274. *See* "Cotton."
Goths, i. 346.
Gourds, iv. 158–161, 212, 213.
Gout, v. 192—remedies for, v. 352, 353, 447; vi. 46, 47.
Government of bees, iii. 18.
Gracchanus, Junius, vi. 144.
Gracchi, ii. 149, 154.
Gracchus, C. ii 237.
Gracilis, Furannius, i. 267.
Græcanic pavements, vi. 378.
"Græcia," the name, i. 288, 293.
Græcinus, Julius, iii. 275.
Græcostasis, ii. 237.
Græcula, iii. 224.
Græcus, i. 293.
Grafting, iii. 295, 298, 302, 467, 477–485—marvels of, 484.
Grain, different kinds of, iv. 19–24 — grown in the East, 31, 32—diseases of, 54, 55, 56—remedies for them, 57, 58, 59.
Grain of Cadoe, iii. 201; v. 242.
Grain of wood, iii. 414.
Gramen, v. 72, 73.
Grampus, ii. 359.
Granenum, iv. 43.
Granatum, iii. 200.
Granicus, i. 476, 489.
Granius, v. 368.
Grapes, the nature of, iii. 218–222 — smoked, 221—of Egypt, 240—solstitial, 256 modes of keeping, 304–307 — how protected from insects, 517 remedies from fresh, iv. 4 1—from preserved, 461, 462
Grape-fish, ii. 359; vi. 57, 65.
Grape-husks, iv. 463.
Grape stones, iv. 462.
Graphia, vi. 229, 255.
Graphis, vi. 255.
Grasshoppers, iii. 31, 32 33 —eaten, 32 — have no mouth, 32 — countries without, 32, 33 — some without a voice, 33.
Gratidianus, Marius, vi. 159.
Gravisca, i. 188—wines of, iii. 242.
Great year, revolution of the, ii. 480, 484.
Greece, trees of, iii. 201.
Greek-nuts, iv. 513, 514.
Greek weights and measures, iv. 386, 387.
Greeks, hated by Cato the Censor, ii. 176—their credulity, 283, 284 — the opinion of Cato upon them, v. 375.
Greffe-Diane, iii. 484.
Gremil, v. 253.
Grey partridge, ii. 529.
Griffins, ii. 123, 530.
Grinding of corn, iv. 36, 37, 38.
Gromphæna, v. 167, 469.
Grotto del Cane, i. 121, 122.
Ground strawberry, iii. 320.
Groundsel, v. 146.
Grouse, ii. 528.
Groves, consecrated, iii. 535.
Growth of plants, iv. 177, 178.
Grunting, iii. 94.
Grylius, v. 439.
Grynia, i. 473.
Gubbio, i. 239.
Guests, inferior wine given to, iii. 253.
Guinea-fowls, ii. 528.
Gulfs of Europe, i. 153.
Gullet, iii. 62, 64.
Gum, v. 42, 43—nine kinds of, iii. 184, 185—acacia, v. 43, 44—ammoniac, iii. 144, 145; v. 11—Arabic, iii. 134—de Lecce, 134—tragacanth, 202.
Gutones, i. 346.
Guttalus, i. 348.
Guzerat, ii. 48.
Gyara, i. 321—the mice of, ii. 350.
Gyges, ii. 199.
Gymnasia, v. 294, 295.
Gymnastic games, ii. 232.
Gymnetæ, i. 404; ii. 133.
Gymnosophists, ii. 129; iii. 110.
Gynæcanthe, iv. 468.
Gypsies, ii. 13, 15.
Gypsum, vi. 376 — wine treated with, iii. 266—used in making alica, iv. 4 4—taken internally, 289.
Gyrni, ii. 462.

H.

Habron, vi. 261, 281.
Hadramaut, ii. 87, 90.
Hydrobolon, iii. 116.
Hæbudes, i. 351.
Hæmatite, vi. 356, 362, 363.
Hæmatitis, vi. 451.
Hæmatopus, ii. 527.
Hæmorrhage, v. 208, 358, 359. methods of arresting, v. 458; vi. 50.

Hæmorrhois (serpent), iv. 226.
Hæmus, Mount, i. 272, 802, 303, 306; v. 492.
Hagnon, vi. 92.
Hail, i. 90, 91.
Hair, iii. 81, 82—facts relative to, 46, 47; v. 291—cutting of, iii. 417—applications for, v. 214.
Hair of Isis (plant), iii. 212.
Hair-pencil, vi. 250.
Halcyon, ii. 512, 513; vi. 36.
Halcyon days, i. 76; ii. 512, 513; iv. 82.
Halcyoneum, vi. 36, 37.
Halcyonium, ii. 513.
Haliacmon, i. 298; v. 476.
Haliætus, ii. 483, 484.
Halicacabum, iv. 385.
Halicarnassus, i. 462.
Halieuticon of Ovid quoted, vi. 65, 66, 67.
Halimon, iv. 419, 420.
Halipleumon, vi. 63.
Halonnesus, i. 325.
Halus, v. 169.
Halys, ii. 5, 6.
Hamaxobii, i. 330.
Hammitis, vi. 450.
Hammochrysos, vi. 459.
Hammon, Jupiter, i. 395.
Hammoniacum (resin), iii. 144, 145; v. 11.
Hammoniacum (salt), v. 502
Hammonis cornu, vi. 451.
Hammonitrum, vi. 381.
Hams, iii. 87, 88.
Hands, iii. 89.
Handwriting, iii. 91.
Hanging, baths, ii. 468—cita vi. 343—gardens, iv. 150; vi. 343.
Hannibal, i. 164, 227, 230 493, 494; ii. 19; vi. 78, 182, 161, 290, 305 at the gates of Rome, iii. 310.
Hanno, i. 99, 378, 499; ii. 106.
Happiness, supreme, instances of, ii. 186.
Happy, men pronounced most, ii. 199—why Arabia was so called, ii. 136, 137.
Hares, different species of, ii. 348, 349 sleep with the eyes open, iii. 52—with a double liver, iii. 68.
Haricot bean, iv. 47.
Harmodius, vi. 155, 177, 179.
Harmoge, vi. 235.
Harmony of the spheres, i. 17—of the stars, 52, 53.
Harpalus, iv. 128.
Harpasa, i. 465.
Harpocrates, vi. 88.
Harrowing, iv. 66, 67.
Hartwort, iv. 221, 288, 289; v. 71.
Harvesting, iv. 103, 104.
Hasheesh, v. 65.
Hasta pura, ii. 170.
Hatching, ii. 534-537.
Hawks, ii. 487, 488, 519; iv. 229—pursue the chase with men, ii. 488.
Hawkweed, iv. 229, 230.
Hay-grass, v. 257.
Haymaking, iv. 89, 92.
Hazel nuts, iii. 316; iv. 515.
Head, induration of the bones of, ii. 118—in Animals, iii. 46—bones of the, 47—hardest in the parrot, 47—wounds in the, v. 409, 410—how strengthened, 298—diseases of, 324.
Head-ache, remedies for, v. 409, 410.
Health indicated by the urine, v. 301.
Hearing, acuteness of, ii. 163.
Heart, iii. 64, 65, 66—inspected for divination, 66—found wanting in the victims, 66—in what cases it will not burn, 67.
Hearth, prodigies connected with, vi. 384.
Hebrus, i. 303, 305.
Hecale, iv. 426; v. 184.
Hecataeus, vi. 139, 185.
Hecataeus of Abdera, ii. 114.
Hecataeus of Miletus, i. 370.
*Hecatompylos*, ii. 29.
Hecuba, i. 308.
Hederine, v. 33.
Hedge-hogs, ii. 308, 309—their quills used for carding, 309.
*Hêmeomon*, iv. 193.
Hedysmata, iii. 161.
Hedystratides, vi. 139.
Hegesias (artist), vi. 182.
Hegesias (historian), ii. 242.
Hegias, vi. 181, 182.
He-goat, the wonderful effects of its blood, iv. 207; vi. 407.
Height, measurement of, ii. 158; vi. 338—of man, iii. 377.
Helena, iv. 377; v. 81.
Helenium, iv. 333, 376, 377—wine made from it, iii. 259.
Helianthes, v. 66.
Helice, i. 280.
Helices, v. 62.
Helichrysos, iv. 380, 381.
Helicon, i. 278, 290.
Heliocallis, v. 66.
Heliodorus, vi. 187, 319.
Heliodorus Periegetes, vi. 146.
Helion, v. 23, 24.
Heliopolis, i. 418; vi. 331.
Helioscopion, v. 179.
Helioscopium, iv. 413, 414, 415.
Helioselinon, iv. 179, 248.
Heliotropium (plant), iv. 356, 413, 414, 415.
Heliotropium (stone), vi. 450.
Helix, iii. 401.
Helix neritoidea, ii. 311.
Helix pomatia, ii 311.
Hellanicus, i. 371.
Hellas, i. 278, 288.
Helleb̆ore, i. 277; v. 96-101.
Hellen, i. 293.
Hellespont, i. 326—described, i. 488.
Helops, vi. 66.
Helos, i. 282.
Helots, ii. 227.
Helvennaca, iii. 227, 250; iv. 476.
Helvetii, i. 355.
Helxine, iv. 353, 406; v. 115.
Hemerobion, iii. 42.
Hemerocalles, iv. 333, 376.
Hemina, Cassius, ii. 156.
Hemionion, v. 95, 96, 228, 229.
Hemlock, v. 140, 141; wine, an antidote to the effects of, iii. 238.
Hemp, iv. 198, 297, 298.
Henbane, v. 91, 92.
Heneti, ii. 4.
Heniochi, ii. 10, 11, 12, 22.
Henna, iii. 146; iv. 492.
Henry II. of France, ii. 153.
Henry V. of England, his saying, iii. 404.
Hepatites, vi. 363, 364.
Hepatitis, vi. 458.
Hephæstiades, i. 221.
Hephæstitis, vi. 450.
Hepsema, iii. 248.
Heptaphonon, v. 345.
Heraclæa, i. 298.
Heracleon, v. 107.
Heracleopolites, i. 408.
Heracleos, v. 253, 254.
Heracleotici, ii. 425.
Heraclia, i. 224, 273.
Heraclides of Heraclæa, i 373; iii. 158.
Heraclides of Tarentum, iii. 158.
Heraclides (artist), vi. 276.
Heraclides (physician), vi. 145.
Heraclion, vi. 355.

Heraclium, iv. 268, 269, 270, 278, 279.
Herat, ii. 68.
Herb mastich, iii. 147.
Herba pratensis, iv. 14.
Herbalists, their malpractices, iv. 372.
Herbs, wines made from, iii. 259, 260—juices and flavours of, iv. 202, 203.
Herculanea (ants), v. 432.
Herculaneum, i. 197.
Hercules, i. 157, 177, 304, 318, 369, 375; ii. 33, 48, 55; v. 103, 288—and Iphicles, ii. 144 — temple of, at Rome, 508 — Fictilis, vi. 286—Carthaginian statue of, 321.
Hercules, Pillars of, i. 152.
Hercynian Forest, i. 329, 348; ii. 528; iii. 341.
Herdonea, i. 230.
Hermaphrodite, fl. 136; iii. 92.
Hermaphroditism in fish, ii. 391.
Hermaphroditus, ii. 136.
Hermesias, v. 66.
Hermias, tomb of, vi. 410.
Herminei, vi. 411.
Hermippus, v. 470.
Hermit-crab, ii. 426, 451.
Hermopolis, i. 412.
Hermotimus of Clazomenæ, ii. 211.
Hermuaidoion, vi. 450, 451.
Hermunduri, i. 347.
Hermupos, v. 92, 93, 94.
Hernia, remedies for, vi. 44.
Herodotus, when he wrote his History, iii. 108—quoted, i. 331, 333, 335, 337, 405, 414, 425, 452, 466, 487, 491; ii. 24, 34, 89, 512, iii. 137; vi. 336, 337, 338, 414.
Heroic exploits, instances of, ii. 167.
Herons, ii. 538, 539.
Heroöpolis, ii 92.
Herophilus, iii. 100; v. 82, 372.
Herolim, iv. 417.
Herpes, v. 469.
Hesiod, his father's birthplace, i. 472 mentioned, ii. 242—quoted, i. 272; ii. 200; iii. 216, 552; iv. 425, 474; v. 304.
Hesperian Promontory, i. 380.
Hesperides, i. 375; vi. 400—Gardens of the, iv. 149—Islands of the, ii. 106.
Hesperu Ceras, ii. 105.
Hestiatoria, v. 66.
Hesus, v. 426.
Hesychius quoted, i. 285.
Hexapolis, Æolian, i. 487.
Hexecontalithos, vi. 451.
Hibernia, i. 351.
Hibiscum, iv. 218.
Hicesius, iii. 338.
Hickory-nut, iii. 317.
Hiddekel, ii. 75.
Hides of animals, iii. 80, 81.
Higrabotane, v. 121, 122.
Hieracitis, vi. 451.
Hieracium, vi. 197.
Hierapolis, i. 122, 160; vi. 9.
Hieratica, a kind of paper, iii. 188.
Hieres, islands of, i. 213.
Hiericus, i. 427, 428; iii. 175.
Hiero, King, ii. 356.
Hieromnemon, vi. 448.
Hierosolyma, i. 428, 431.
High farming, iv 15.
Hilarus, C. Crispinus, ii. 150.
Hillæ, iii. 71
Himalaya, ii. 38.
Himantopodes, i. 406.
Himera, i. 218.
Himilce, i. 164.
Himilco, i. 99, 499.
Hindoo mythology, vi. 400.
Hindú Kúsh, i. 454; ii. 33.
Hinnulus, ii. 325.
Hippace, v. 111.
Hipparchus, i. 37, 148—his doctrine on the stars, 59.
Hippo Diarrhytus, i. 389; ii. 373.
Hippo Regius, i. 388.
Hippocampus, vi. 25, 29.
Hippocentaur, ii. 137.
Hippocrates, ii. 182, 241; v. 371—his precepts, 156.
Hippocrene, i. 291.
Hippodamantian wine, iii. 246.
Hippoi, ii. 425.
Hippolapathon, iv. 287.
Hippomanes, ii. 321; v. 339, 340, 365.
Hippomarathron, iv. 296, 297.
Hipponax, vi. 308
Hippophaes, iv. 401, 402.
Hippopheston, iii. 434; v. 250, 251.
Hippopheos, v. 174, 175.
Hippophlomos, v. 138, 139, 140.
Hippophobas, v. 64.
Hippopodes, i. 143.
Hippopotamus, iii. 318, 319—described, ii. 280, 291 when first exhibited at Rome, 280—breeds itself, ii. 291—its hide, iii. 80.
Hippos, vi. 63. *See* "Hippoi."
Hipposelinon, iv. 180, 248.
Hippuris, v. 203, 204.
Hippurus, ii. 394.
Hirpini, i. 225, 229.
Hirtius, Quintus, iv. 204.
Hissing, iii. 94.
Histropolis, i. 305.
Hive-moths, iii. 22.
Hoeing, iv. 66.
Hogs, ii. 342—their propagation, 342 — diseases of, 343 — their brutishness, 343 — their intelligence, 343, 344—choice parts of, 344.
Holcus, v. 250.
Holland's Translation of Pliny, quoted, i. 419; ii. 39, 56; iv. 501; v. 31, 236, 237, 254, 278, 282, 323, 378, 399, 406, 417, 440; vi. 9, 60, 63, 75, 103, 106, 111, 122, 133, 137, 205.
Holm-oaks, iii. 353; v. 455—aged, iii. 430, 431.
Holochrysos, iv. 328, 373.
Holoschœnus, iv. 361, 364.
Holosteon, v. 250.
Holothuria, ii. 458.
Holothuria pentacles, ii. 359.
Homer, his tomb, i. 321—his poems honoured by Alexander, ii. 173—his works quoted, i. 73, 117, 194, 209, 214, 274, 279, 287, 292, 293, 296, 310, 311, 325, 404, 412, 476, 484, 489, 490; ii. 4, 132, 156, 236, 334; iii. 186, 193, 197, 343, 386, 451, 456; iv. 14, 35, 139, 150, 321, 360, 377, 412, 473; v. 28, 81, 87, 88, 108, 282, 381, 423; vi. 60, 71, 74, 75, 105, 213, 263, 265, 276, 533—misquoted, v. 494.
Homona, i. 450.
Hones, vi. 370, 440.
Honey, iii. 6, 8, 9, 10—the qualities of, 11, 12—peculiar kinds of, 12, 13—how tested, 14—wild, 14, 15 when gathered, 14, 15 of Attica, iv. 332 from the olive, 340—poisonous, 341, 342—maddening, 342, 343—untouched by flies, 343 — remedies derived from, 434, 435.
Honey-comb, iii. 11.
Honey-dew, v. 22.
Honeysuckle, v. 105.

Honied wine, ii. 215; iii. 246; iv. 437, 438.
Honours, examples of, ii. 189.
Hoofs of animals, ii. 549; iii. 89, 90—how renewed when worn, 45.
Hoopoe, ii. 511; iii. 43.
Hops, iv. 347.
Horace, his birth-place, i. 228—his works quoted, 4, 22, 86, 129, 139, 192, 193, 227; ii. 529, 533; iii. 523; iv. 131, 174, 509; vi. 175, 317, 324.
Horaion, iii. 13.
Horatii, ii. 135.
Horehound, iv. 269, 290, 291, 292.
Horminum, iv. 86, 454.
Hormiscion, vi. 451.
Horn, how bent, iii. 45—pictures upon, 45.
Hornbeam, iii. 368.
Horned fish, ii. 411.
Horned owl, ii. 492; v. 400—funereal, ii. 492.
Horned pheasant, ii. 530.
Horned poppy, iv. 278.
Hornets, iii. 24, 25.
Horns, of a gigantic ant, iii. 39—various kinds of, 44, 45, 46—moveable, 44—on the human head, 44.
Hornstone, vi. 455.
Horse, the first use of, ii. 229—wild, 363—the nature of, 317—of Alexander, 317—of Cæsar, 317, 318—tombs of, 318—Semiramis enamoured of one, 318—weeping, 318—its sense of propriety, 318—dance by, 318—grief of, 318, 319—its intelligence, 319—duration of its life, 320—its generation, 320, 321, 322—its paces, 322—its gall not in the liver, iii. 69—hermaphrodite, 92—blood of, used by the Sarmatians, iv. 38.
Horse-radish, wild, iv. 48.
Hortensius, i. 196; ii. 496; vi. 167—wines left by, iii. 255.
Horus, v. 420, 468; vi. 88.
Hostilia, the bees of, iv. 341.
Hostilius, Hostus, iii. 343.
Hostilius, Tullus, i. 84; v. 280, 281, 282.
Hot drinks, v. 236.
Hot springs, i. 133, 195, 266; v. 472.
Houseleek, iv. 58, 349; v. 143, 144.
Houses first built, ii. 222.
Human beings beloved by dolphins, ii. 372, 373, 374.
Human sacrifices, i. 334; ii. 122; v. 426.
Hundred-plant drink, v. 112.
Hunger, how allayed, iii. 99.
Hunting-nets, iv. 133, 134.
Hurricane, i. 79.
Hyacinth, iv. 317, 381.
Hyacinthos (stone), vi. 434.
Hy des, i. 67; iv. 87.
Hyæna, ii. 296; iii. 54; v. 309–314; vi. 451.
Hyæna (fish), vi. 66.
Hyænia, vi. 451.
Hyalin quartz, vi. 438, 439.
Hyampolis, i. 292.
Hybla, i. 220—honey of, iii. 12.
Hybrid goats, ii. 346—swine, 346.
Hydaspes, ii. 41, 47.
Hydrargyros, vi. 99, 124.
Hydri, v. 397.
Hydrocele, remedies for, v. 446.
Hydrolapathum, iv. 287.
Hydromancy, v. 427; vi. 461.
Hydromel, iv. 435, 436, 437.
Hydromeli, iii. 261; v. 498.
Hydrometer, v. 485, 486.
Hydrophobia, ii. 516, 517; iv. 248; v. 84, 331, 405, 436, 497; vi. 23, 210.
Hydruntum, i. 226.
Hydrussa, i. 315.
Hygimus, i. 288.
Hygremplastrum, vi. 212.
Hylas, ii. 555.
Hymen, imperforate, ii. 154.
Hymettus, i. 289—honey of, iii. 12.
Hyophthalmos, vi. 469.
Hyoscyamos, v. 91, 92.
Hyoseris, v. 250.
Hypæpæ, i. 472.
Hypanis, i. 332, 335; v. 493—the short-lived insect of the, iii. 42.
Hypasis, i. 107; ii. 41, 47.
Hypatodorus, vi. 169.
Hypecoön, v. 251.
Hypenemia, ii. 538, 539.
Hyperborei, i. 336, 337; ii. 23, 24.
Hypericon, v. 185.
Hyphear, iii. 434.
Hypocheeris, iv. 349.
Hypocisthis, v. 172.
Hypoglossa, v. 251.
Hyrcania, tree of, iii 115.
Hyrcanian Sea, i. 453; ii. 24, 30.
Hyrcanus, the dog, ii. 313.
Hyriæ, i. 292.
Hysgæ, ii. 450.
Hysginian tint, ii. 450.
Hysginum, iv. 381.
Hyssop, v. 133, 134.
Hysteria, v. 355.

Iacchus, Fescennius, vi. 67.
Iadera, i. 259.
Iana, vi. 281.
Ialysos, i. 483.
Ian, M., his collations of Pliny, vi. 1, 465.
Ianthinum, iv. 326.
Iapydes, i. 262.
Iasione, iv. 358, 423, 424.
Iaspis, vi. 414, 430, 431.
Iaspunyx, vi. 431.
Iatraleptics, v. 371
Iatronices, v. 373.
Iazyges, i. 329.
Iberia, ii. 20.
Iberis, v. 112, 113.
Iberus, i. 361.
Ibex, ii. 346, 347.
Ibis, ii. 291, 507, 529—black, 512.
Icaros, i. 320.
Icasium, i. 386.
Icetidas, v. 303.
Ichneumon, ii. 286–289.
Ichnusa, i. 216.
Ichthyocolla, vi. 31, 32.
Ichthyophagi, ii 59; iii. 98, 289.
Iconicæ, vi. 155.
Iconium, i. 452.
Icterias, vi. 452.
Ictinus, vi. 63.
Ictis, v. 392.
Ida, i. 314, 474.
Idæa herba, v. 251.
Idæan bramble, v. 50.
Idæi dactyli, vi. 452.
Idalium, i. 481.
Idocrase, vi. 404.
Idumæa, i. 425.
Igilgili, i. 386.
Iguvium, i. 239—oil of, iv. 494.
Ilerda, i. 166.
Iliac passion, remedies for, v. 442.
Iliad, contained in a nutshell, ii. 162.
Ilium, i. 477.
Ill omen, birds of, ii. 461—trees of, iii. 385.
Illecebra, v. 114, 145.
Illiberis, i. 175.
Illyricum described, i. 257, 265.
Ilus, tomb of, iii. 431.
Ilva, i. 214.
Imagination, effects of the, ii. 146.

Imagines, iv. 346.
Imatis, i. 454; ii. 42, 124.
Imbros, i. 324.
Immortelle, iv. 308, 328.
Immusulus, ii. 487.
Impetigo, Greek charm for, v. 254.
Impis, v. 70.
Impotence, iv. 298.
Inarime, i. 214.
Incendiary bird, ii. 492, 493.
Incisions in trees, iii. 529, 530.
Incisors, iii. 58, 59.
Incubation of birds, ii. 512, 534–537.
India, the conquests of, i 302—the nations of, ii. 38—expeditions to, of Alexander, 39, 40, 41, 360, 361; iii. 138, 211, 212; vi. 27—of Seleucus, ii. 41—voyages to, 60–63—wonders of, 129—terrestrial animals of, 280.
Indian ass, iii. 89, 90—fig, 109, 110—ink, ii. 417; vi. 241—olive, iii. 111—thorn, 109.
Indian Ocean, plants of, iii 211—monsters of, ii. 359.
Indica (stone), vi. 452.
Indicum, vi. 143, 241, 242, 243.
Indiges, Jupiter, i. 193.
Indigestion, iii. 98.
Indigo, vi. 143, 242, 243, 452.
Indurations, remedies for, v. 357.
Indus, ii. 46.
Inequality of climates, i. 102, 103, 104.
Infants, swathing of, ii. 118, —born with teeth, 153—dreams of, 553—never cry in the womb, iii. 94—diseases of, v. 364, 465, 466, 467; vi. 56, 57.
Influences of the seasons, i. 67, 68, 69.
Ingævones, i. 343.
Inguinalis, v. 188, 229.
Ink, v. 2, 3—Indian, ii. 417; vi. 241—of the sepia, 58.
Inoculation of trees, iii. 477.
Insanity, Lake of, v. 478.
Insects, the minuteness of, iii. 1, 2—why so called, 1—whether they respire, ii. 3—voice of, 3—whether they have blood, 3—their bodies, 4, 5—wings of, 33—parasitical, iii. 40—feet of, 95—that breed in leguminous plants, iv. 415.
Instinct of animals, ii. 248.
Interamna, i. 233.
Interbreeding of fish, ii. 464.
Intercalation, iv. 76.
Interlunium, iv. 112.
Intoxication, remedies for, v. 468.
Introduction to the work, i. 1–11.
Inundations, i. 116.
Invalids, peaches recommended for, iii. 294.
Inventions, v. 77.
Inventors of various things, ii. 219.
Iol, i. 386.
Iolcos, i. 296.
Iolite, vi. 407.
Iollas, iii. 158.
Ion, vi. 169.
Ionia described, i. 466.
Ionian Sea, i. 265.
Ios, i. 321.
Irinum, iii. 160.
Irio, iv. 36, 453, 454.
Iris (plant), iv. 324, 325, 371, 372.
Iris (stone), vi. 438, 439.
Iritis, vi. 439.
Iron, discovery of, ii. 225—the art of working, 225—rings of, vi. 78—an account of, 205–209, 210, 211.
Irrigation, iii. 528, 529; iv. 68.
Irving, Washington, indebted to the story of Epimenides, ii. 211.
Isatis, iv. 229.
Isauria described, i. 450.
Ischæmon, v. 111.
Ischia, i. 214.
Isidorus, C. Cæcilius Claudius, vi. 130.
Isidorus of Charax, i. 150.
Isigonus, ii. 241.
Isinglass, vi. 31, 32.
Isis, hair of, iii. 212.
Iskenderun, i. 447.
Islands, suddenly formed, i. 117, 118, 119—united to the main land, 119—of Europe, 210.
Ismaron, i. 304.
Ismenias (musician), vi. 388.
Ismenias (writer), vi. 468.
Isocinnamomum, iii. 141.
Isocrates, ii. 174.
Isodomon, vi. 372.
Isopyron, v. 251, 252.
Isox, ii. 382.
Issa, i. 259, 260.
Issos, i. 447.
Istævones, i. 347.
Ister, i. 250, 262, 328. *See also* "Danuvius."
Isthmian games, i. 285.
Isthmus of Corinth, i. 278, 279.
Istria, i. 251.
Istropolis, i. 328.
Italy, described, i. 180—its praises enlarged upon, 181, 182; vi. 464, 465—its shape, i. 183—forbidden to be dug for minerals, 257—the country of the vine, iii. 215, 218—when generous wines were first made in, 251—its climate, v. 158—practice of magic in, 425, 426—its high rank among nations, vi. 464, 465.
Itch, remedies for, v. 360.
Ithaca, i. 311.
Iton, iv. 144.
Iulis, vi. 39, 63.
Iviza, i. 211.
Ivory, ii. 247; iii. 103—fossil, ii. 247.
Ivy, iii. 376, 399–403; v. 32–35.
Ixias, iv. 407, 408, 409; v. 234.
Iynx, iii. 90.

J.

Jackal, ii. 97, 304.
Jackdaw, ii. 493, 508—guilty of stealing, 508.
Jaculus, ii. 285.
Jaffa, i. 426; ii. 364.
Janiculum, i. 204.
Jannes, v. 425.
Janus, vi. 90, 315.
Jason, the Argonaut, i. 207; ii. 9, 26, 233.
Jason, of Pheræ, ii. 206.
Jasper, vi. 425, 429, 430, 431, 445.
Jaundice, remedies for, iv. 438; v. 200, 354, 452.
Jawbone, iii. 56.
Jaxartes, ii. 25.
Jay, ii. 522.
Jealousy in females, v. 397.
Jerboa, ii. 308.
Jericho, i. 427, 428; iii. 175.
Jerome, Saint, quoted, vi. 267.
Jerusalem, i. 428, 431.
Jet, vi. 361, 362.
Jewels, vi. 386, 387, 388—displayed at Rome by Pompeius Magnus, vi. 390, 391.
Jews, vent their rage upon the balsamum of Judæa, iii. 148—their rites, v. 508, 509.
Jew-stone, vi. 443, 456, 457, 460.

Jhelum, ii. 41, 47.
John, Saint, i. 324.
John the Baptist, i. 430, 431.
Joints, diseases of, v. 202, 203.
Jomanes, river, ii. 41, 42.
Jonquil, iv. 244.
Joppa, i. 426; ii. 364.
Jordanes, river, i. 427, 428, 429.
Josephus quoted, i. 427, 428, 431, 432, 467; ii. 75.
Joshua, i. 395.
Jovis gemma, vi. 452.
Juba, King, i. 383, 498; ii. 82; iii. 125.
Judæa, described, i. 427—its balsamum, iii. 148 — its palm-trees, 169.
Judices, v. 378; vi. 82, 83.
Jugerum, iv. 4, 5—grain required for sowing a, 71, 72.
Jugglers, iii. 58.
"Juglans," origin of the word, iii. 317.
Juices of fruits, iii. 323-326—of trees, 412.
Jujube, iii. 297.
Julia, ii. 198, 199, 535, 536—her depravity, 143.
Julius Cæsar, i. 58, 62, 168, 241, 256, 279, 390; ii. 166; iv. 188; v. 283; vi. 155, 232, 233, 324, 346 — his epistles quoted, iii. 241, 242—wine given by him at his banquets, 255 — Pliny borrows from his account of the yew, 360—his reformation of the calendar, iv. 76.
Jumna, ii. 41, 42.
Juncinum, iii. 289.
Juniper, iii. 178, 380, 381; v. 24, 25—wine from the, iv. 478.
Juno, v. 485—Temple of, at Rome, vi. 322.
Jupiter, feasts of, v. 121—Temple of, at Rome, vi. 322.
Jupiter's beard (shrub), iii. 372.
Jura, i. 174.
Jurisdictio, i. 159.
Jus Latii, i. 155.
Justin quoted, i. 177, 225.
Juvenal quoted, i. 21, 301, 321; ii. 541; iv. 144; vi. 70, 80, 305.

K

Kæmpfer quoted, vi. 4.
Kaffa, i. 334.
Kestri, i. 277.
Keeping of fruits, iii. 303-307.
Κήποι, ii. 278.
Kermes-berry, ii. 450; iii. 353; iv. 390; v. 4, 5.
Kertsch, i. 327, 334.
Kestril, ii. 519.
Khimara, i. 272.
Kidneys, iii. 73, 74—stags with four, 73.
Kidney-bean, iv. 47.
Killing of animals, the first, ii. 235.
Kingfisher, ii. 512, 513; vi. 36.
Kipes for fishing, v, 361.
Kirmanshah, ii. 79.
Kissing, as a salutation, v. 153.
Kite, ii. 490.
Knees, iii. 87, 88.
Knot-grass, v. 259.
Kohl, iii. 54; vi. 115.
Kokend, ii. 33.
Κόσμος, i. 17.
Kraken or korven, ii. 362.
Kurds, ii. 29.

L

Labeo, Antistius, ii. 554.
Labeo, C. Atinius, ii. 193.
Labeo, Titidius, vi. 230.
"Labeo," origin of the name, iii. 56.
Laberius, ii. 476.
Laborium, i. 195.
Labourers, their wines, iii. 234, 251—fed on figs, 113.
Labranda, vi. 8.
Labrum Venereum, v. 148, 242, 243.
Labrusca, iii. 255; iv. 464, 465.
Labyrinth, i. 418; vi. 339—342—of Crete, vi. 184.
Laccadives, ii. 51.
Lacedæmon, i. 283.
Lacinium, i. 223.
Laconia described, i. 283.
Lactes, iii. 71.
Lactoris, v. 68.
"Lactuca," whence derived, iv. 181.
Lacus, iv. 109.
Lacydes and his goose, ii. 499.
Ladanum, iii. 132, 133, 134; v. 171, 172.
Læstrygones, i. 194.
Lagara, wine of, iii. 243.
Lagenæ, iii. 242.
Lagine, v. 66.
Lagopus, ii. 529; v. 173, 174.
Laina, iii. 132.
Laippus, vi. 170, 176.
Lais, v. 368.
Laletanum, wine of, iii. 244.
Lalisiones, ii. 328.
Lambs, ii. 331.
Lamia, L., ii. 210.
Lamia (fish), ii. 411.
Lamium, iv. 404, 405; v. 254.
Lamp-black, iii. 259, 263; vi. 241.
Lamp-stands, vi. 152.
Lampedusa, i. 403.
Lampido, ii. 188.
Lamprey, ii. 394.
Lampsacus, i. 308, 389.
Lanata, iii. 297.
Land, fishes that live upon, ii. 471, 472—buying of, iv. 11, 12, 13—manuring of, iv. 68, 69—laying out of, iv. 114—117.
Lands, separated by the sea, i. 119—changed into sea, i. 119, 120—swallowed up by the sea, i. 120.
Landslips, i. 115, 116; iii. 527.
Language, iii. 95.
Lantern-fish, ii. 415.
Laocoön, the Belvedere, vi. 320.
Laodice, ii. 146.
Laodicea, i. 437, 441, 460.
Lapathum, iv. 287, 288
Lapdogs, i. 267—nursing of, v. 437.
Lapidaries, vi. 389.
Lapis lazuli, vi. 432.
Lapithæ, i. 295.
Lappa, iv. 358.
Lappa boaria, v. 194.
Lappa canaria, v. 71.
Lappago, v. 192, 193.
Lapsana, iv. 188, 241.
Lapwing, ii. 512.
Lar, v. 285.
Larch, iii. 357, 359, 414, 416; v. 13.
Lard, v. 324, 325, 326.
Lares, iii. 331—Compitales, i. 203.
Larinus, vi. 63.
Larisa, i. 284.
Lartius Licinius, v. 480.
Larvæ, iii. 519.
Laser, i. 396, 398; iii. 399; iv. 145, 147, 432, 433, 434.
Laserpitium, iv. 144-147, 148.
Latace, v. 159.
Latera, Lake, ii. 374.
Lathyris, v. 252.
Laticlave tunic, ii. 331, 335, 447—purple, 442.
Latium described, i. 191.
Latin confederacy, i. 205.
Latin Festival, v. 233.
Latiniensian wines, iii. 242.

Latinitas, i. 155.
Latmus, i. 467.
Latona, i. 319.
Latro, Porcius, iv. 263.
Laughing-plant, v. 66.
Laughter, absence of, ii. 159—description of, iii. 70, 71—persons die with, when pierced, 71 — connected with the spleen, 73.
Laurea, Tullius, v. 473.
Laurel, oil of, iii. 288—varieties of, 332, 333, 334—anecdotes connected with it, 334-337—never struck by lightning, 335—crackles in the fire, 335—remedies derived from, iv. 516-519.
Lauriotis, vi. 203.
Lauron, wine of, iii. 244.
Laurus cassia, iii. 153.
Lavender, iii. 120; iv. 338; v. 169.
Laver, v. 172.
Laws, first introduction of, ii. 220. *See also* "Twelve Tables."
Layers, trees propagated from, iii. 475, 476, 477.
Læna, her fortitude, ii. 164; vi. 179.
Lead, vi. 112, 212–218.
Lead-wort, v. 141, 142.
Leaf-gold, vi. 96, 97.
Leather, tanning of, iii. 201—preparation of, v. 38—dyeing of, 71.
Leaven, iv. 38, 39.
Leaves, trees that never lose their, iii. 118 — of trees described, 374–379—of plants, iv. 356.
Lebanon, i. 435.
Lebedos, i. 469.
Lecanomancy, v. 427.
Lecheæ, i. 278.
Lectisternia, vi. 10.
Leda (plant), iii. 133.
Leeches, vi. 29, 51.
Leeks, iv. 173, 174, 223, 224, 225—juice of, poisonous, 174.
Lees, of sapa, iv. 484—of wine, 482, 483—of vinegar, 483.
Legacy-hunting, iii. 217.
Legion, the fifth, iii. 43.
Leguminous grain, iv. 106, 107.
Leguminous plants, iv. 43, 44, 81—insects that breed in, iv. 455.
Leleges, i. 292, 478.
Lemannus, Lake, i. 175.
Lemnisci, iv. 306.
Lemnos described, i. 324—earth of, vi. 236, 237—Labyrinth of, vi. 341.
Lemonium, v. 122.
Lenæus, Pompeius, v. 78, 79.
Lentils, iv. 46, 448, 449.
Lentisk, iii. 132, 323; v. 17, 19, 20.
Lentulus, ii. 147.
Leochares, vi. 169, 182, 316, 317.
Leonatus, ii. 60.
Leonidas, tutor of Alexander, iii. 128.
Leontice, v. 133.
Leontios, vi. 460.
Leontiscus, vi. 174.
Leontopetalon, v. 252.
Leontophonus, ii. 310.
Leontopodion, v. 173.
Leopard, how produced, ii. 264, 265.
Lepanto, i. 175.
Lepas, vi. 63.
Lepidi, family of the, ii. 145.
Lepidotis, vi. 452.
Lepidus, M., ii. 181; vi. 272, 324, 348.
Lepis, vi. 194, 195.
Lepontii, i. 254, 255.
Leprosy, v. 153.
Leptis, i. 391, 393.
Leptophyllos, v. 180.
Leptorragæ, iii. 220.
Lerida, i. 166.
Lernæa, a parasitical class of insects, ii. 390.
Leros, i. 322.
Lesbias, vi. 452.
Lesbos, described, i. 487—wines of, iii. 245.
Lethargus, iv. 461.
Lethargy, v. 198, 355; vi. 49.
Lethe, v. 477.
Letters, origin of, i. 424; ii. 220, 221—ancient, 236.
Lettuce, iv. 180, 181, 182, 228–232.
Leucacantha, iv. 405; v. 263.
Leucacanthos, iv. 353.
Leucadia, i. 274.
Leucanthemum, iv. 378; v. 263.
Leucanthemus, iv. 411, 412.
Leucanthes, iv. 383.
Leucatas, i. 494.
Leucate, i. 274.
Leuce, i. 315, 471.
Leuce (plant), v. 254, 255.
Leucocoron, v. 173.
Leucimna, i. 310.
Leucochrysos, vi. 465, 453.
Leucocoum, iii. 247, 248.
Leucogæa, vi. 449, 476.
Leucographis, v. 255.
Leucographitis, vi. 449.
Leucopetra, i. 210.
Leucophoron, vi. 98, 99, 237, 238.
Leucophthalmos, vi. 452.
Leucosacilos, vi. 453.
Leucosyri, ii. 7.
Leucrocotta, ii. 279.
Leuctra, i. 283.
Libadion, v. 104.
Libanian wine, iii. 262.
Libanochrus, vi. 453.
Libanotis, iv. 203, 267.
Libanus, i. 435.
Libations, iii. 262.
Libella, vi. 89.
Liber (the divinity), i. 290; ii. 167; vi. 316.
Libera, vi. 316.
Liberal arts, iii. 217; iv. 391.
Libethra, i. 296.
Libo, Scribonius, vi. 346.
Library, first public, ii. 177.
Libs, iv. 116.
Liburnia described, i. 257.
Liburnica, ii. 365.
Libya, i. 374—Mareotis, described, i. 401.
Libybæum, i. 218.
Libycum, iv. 245, 246.
Libyphœnices, i. 390.
Libyssa, i. 494.
Lice, remedies for, iii. 40; v. 409.
Lichen, remedies for the disease, iv. 208; v. 152, 153, 154, 160, 161; vi. 35.
Lichens, iii. 145, 146 — on plumtrees, iv. 508.
Liciniani, ii. 150.
Life, the duration of, ii. 132, 133, 200–205—the frailty of, 141, 142—the uncertain tenure of, 206—persons who have returned to, 210 — whether the blood is the principle of, iii. 80.
Light, emitted from the eyes of dead fish, iii. 54—from rotten wood, 54.
Lightning, particulars connected with, i. 69, 70, 84, 85, 86; v. 471—its effects, i. 81, 82—objects struck by, 86—not struck by, 86, 87—of a remarkable nature, ii. 200 — expiation for, iii 302, 310.
Liguria described, i. 184.
Ligurians, i. 185.
Ligusticum, iv. 265.
Ligustrum, iii. 146; v. 32.
Lily, iv. 314, 315, 316, 368, 367.

Limbs, of animals, iii. 43—superfluous, 95.
Lime (tree), iii. 366, 367; v. 23.
Lime (for building), vi. 373, 375.
Limestone, iii. 455.
Limeum, v. 254.
Limonia, iv. 425, 426.
Limoniatis, vi. 453.
Limonion, iv. 233.
Limonite, vi. 363.
Limyra, i. 455.
Linden-tree, iii. 366, 367; v. 23.
Lindos, i. 483.
Linen, iv. 132, 133; v. 273—when first dyed, iv. 138—bleaching of, iv. 279.
Lingua (plant), v. 69.
Lingulaca, v. 132, 133.
Linnet, ii. 562.
Linozostis, v. 92, 93, 94.
Linseed, iv. 135, 294, 295.
Linus (river), v. 475.
Lion, how produced, ii. 264, 265, 266—different species of, 268—its food, 266, 267—attacks men, 267—its alleged clemency, 267, 271—its anger and courage, 268—terrified by the crowing of a cock, 269—when first exhibited at Rome, 269—how caught, 270—wonderful feats by, 270—harnessed, 270—its gratitude, 271, 272—killed by the leontophonus, 310—killed by a dog, 315—its breath fœtid, iii. 97—remedies derived from, v. 308.
Lion-crab, ii. 425.
Lipara, i. 221.
Liparæ, vi. 219.
Liparæan islands, i. 221.
Liparea, vi. 453.
Liparis, river, i. 450; v. 478.
Lips, iii. 56.
Liquenrs, iii. 247.
Liquorice, iv. 351, 399, 400; v. 110, 163, 217.
Lirinon, iv. 314.
Lisbon, i. 364.
Litemum, ii. 311; iii. 234.
Litharge, vi. 117, 118.
Lithontriptics, v. 444; vi. 28.
Lithospermum, v. 253, 254.
Live iron, vi. 209.
Liver, of the goose used for food, ii. 499—described, iii. 67, 68—wanting in victims, 68—sometimes double, 68—increase of, with the moon, 70—its powers of preservation, 70—remedies for complaints of, v. 344—remedies for pains in, 438, 439; vi. 39.
Livia Augusta, her longevity, iii. 239—omen of the laurel, 336.
Livy, ii. 114—his birthplace, i. 252—his works quoted, 5, 87, 88, 105, 143, 187, 224, 229, 297, 478; ii. 136.
Livy, the Younger, i. 497.
Lixos, i. 375, 376.
Lizards, ii. 299, 312; v. 397, 402, 403, 414, 415, 417—gigantic, ii. 312—spotted, iii. 31.
Loadstone, vi. 209, 355, 356.
Localities of trees, iii. 370, 371, 372.
Lochia polyrrhizos, v. 116, 117, 118.
Lochius, Publilius, vi. 301, 302.
Loci, iii. 75.
Lockets, v. 435.
Locri, i. 222.
Locrians, Epicnemidian, i. 192.
Locris described, i. 276.
"Locuples," derivation of the word, iv. 5.
Locusta (the botanic term), iv. 455.
Locusts, ii. 133; iii. 56, 56, 57—plagues of, 86, 87—eaten, 37—remedies derived from, v. 403.
Loins, remedies for pains in the, v. 344, 345, 440, 441.
Loligo, ii. 389, 416, 417.
Lollia Paulina, her pearls, ii. 437, 438.
Lollius, M. ii. 438.
Lonentum, vi. 108, 109, 142.
Lonchitis, v. 134.
Long life, indications of, iii. 96.
Longompori, ii. 103.
Longula, i. 206.
Longulanus, C. Severus, ii. 148; vi. 303.
Lopadusa, i. 403.
Lophius piscatorius, ii. 412.
Lora, iii. 234, 251.
Loretum, iii. 337.
Lorum, vi. 72.
Lotapea, v. 425.
Lotometra, iv. 412, 413.
Lotophagi, i. 393.
Lotus, iii. 439; iv. 358, 412; v. 3, 4—of Africa, iii. 198—of Egypt and the Euphrates, 199, 200—aged, 430.
Louis XIV. of France, ii. 153.
Louse-plant, iv. 464.
Lovage, iv. 194, 195, 265.
Luca, i. 187.
Lucan, his "Pharsalia" quoted, i. 57, 86, 107, 117, 177, 185, 241, 261, 375, 413, 431; ii. 37, 285; iv. 124, 226, 280, 321, 481, 516; v. 73, 129.
Lucania described, i. 207.
Lucanian oxen, ii. 251.
Lucanus, C. Terentius, vi. 246.
Lucanus (a beetle), v. 454.
Lucca, i. 187.
Lucentum, i. 164.
Lucerne (plant), iv. 53, 54.
Lucian, his birth-place, i. 443.
Lucifer, i. 29.
Lucilius, C., mentioned, ii. 365—quoted, vi. 377.
Lucretius, T., mentioned, ii. 554—quoted, i. 133, 205; ii. 137, 553; iv. 138, 321.
Lucrinus, Lake, i. 193; ii. 372—emissary of, vi. 354.
Lucullan marble, vi. 325.
Lucullus, L., i. 306; ii. 8, 9; v. 87, 159; vi. 285, 302—his largesses in wine, iii. 255—introduces the cherry into Italy, 322—his want of moderation, v. 297.
Lucullus, M., i. 338.
Ludius, vi. 270.
Lugdunensis (Gallia) described, i. 355.
Lugdunum, i. 357.
Luna, i. 187—wines of, iii. 242—marble of, vi. 325.
Lungs, iii. 67.
Luperci, vi. 155.
Lupines, iv. 49, 50, 452, 453.
Lupus (fish), ii. 392, 399.
Lurco, M., Aufidius, ii. 496
Lusitania described, i. 363—its fertility, ii. 322.
Lustra, vi. 228.
Lustration, ii. 522.
Lutarius, ii. 402.
Luxor, i. 416.
Luxury, appliances of, found in the sea, ii. 428—excesses of, iii. 167, 168—in woods, 429.
Lycanthropy, ii. 283.
Lycaon, the animal, ii. 304.
Lycaonia described, i. 451.
Lycapsos, v. 252, 253.
Lyceas, vi. 385.
Lychnis (plant), iv. 313, 337, 381—agria, v. 131.
Lychnis (stone), vi. 424, 425.

Lychnitis, v. 127, 128.
Lychnomancy, v. 427.
Lycia described, i. 455.
Lycium, iv. 499, 501; v. 50, 51, 103.
Lycius, vi. 169, 182.
Lycophthalmos, vi. 459.
Lycus, the physician, iii. 157.
Lycus, river, ii. 3, 8.
Lydda, i. 428.
Lydia described, i. 465.
Lygdinus, vi. 330.
Lygos, v. 26.
Lyncestis, i. 299.
Lyncurium, ii. 310; vi. 404, 405.
Lynx, ii. 278, 284, 310; v. 319; vi. 398.
Lyons, i. 357.
Lyron, v. 129, 130.
Lysander, i. 308.
Lysias, vi. 319.
Lysimachia, v. 106.
Lysimachos (stone) vi. 453.
Lysimachus the historian, ii. 357.
Lysimachus strangles a lion, ii. 270.
Lysippus, ii. 184; vi. 169, 174, 175, 176.
Lysistratus, vi. 169.
Lyson, vi. 187.
Lystra, i. 492.
Lytarmis, ii. 24.

M.

Mabog, i. 439
Macaron, i. 339.
Mace, iii. 114.
Macedonia described, i. 261, 297.
Macedonicus, Q. Metellus, ii. 149, 193, 194.
Macer, Æmilius, ii. 477.
Macer, Calvus Licinius, iv. 204; vi. 144.
Macir, iii. 114.
Mackerel, ii. 386, 387.
Macrobii, ii. 101, 132, 133.
Macrobius quoted, vi. 458.
Macrocollum, iii. 190.
Macron Teichos, i. 305.
Mad dog, bite of, ii. 316, 317; iv. 248; v. 83, 84, 331, 405, 406, 407; vi. 23, 210.
Maddening honey, iv. 342.
Madder, iv. 148; v. 38, 39.
Madeira, ii. 106.
Madness, canine, ii. 316—caused by animals licking the skin, iii. 61.
Madon, v. 107.
Madrepores, iii. 210, 211; v. 225.
Mæander, i. 461, 463, 467.
Mæcenas, C. Cilnius, ii. 476.
Mæcenatian wines, iii. 242.
Mæna, ii. 413.
Mænalus, i. 287.
Mænian column, ii. 238.
Mænius, C., vi. 156.
Mæonia, i. 465.
Mæotis (fish), vi. 63.
Mæotis. *See* "Palus Mæotis."
Maggots, ii. 546; iii. 42—in the brains of stags, 48.
Magi, ii. 70; iv. 380, 383, 384, 398, 410, 414; v. 31, 62, 64, 65, 66, 67, 124, 159, 293, 398, 428; vi. 21.
Magic (including amulets, charms, enchantments, philtres, spells, and superstitions), i. 83, 84; iii. 30, 435, 534, 535; iv. 18, 44, 49, 60, 102, 105, 178, 199, 234, 243, 325, 336, 372, 373, 380, 385, 398, 414, 445, 496, 510; v. 22, 28, 30, 31, 35, 42, 46, 47, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 73, 82, 87, 89, 97, 125, 131, 139, 159, 160, 188, 189, 191, 248, 254, 256, 257, 265, 266, 269, 279, 281, 282, 283, 284, 285, 286, 287, 288, 289, 291, 292, 293, 294, 298, 299, 301, 302, 304, 305, 306, 307, 309, 310, 311, 312, 313, 316, 317, 331, 339, 340, 345, 346, 349, 350, 354, 355, 361, 364, 365, 366, 367, 390, 394, 395, 398, 399, 400, 410, 411, 421, 422, 423, 424, 425, 426, 427, 428, 429, 435, 436, 439, 440, 441, 443, 448, 451, 453, 454, 455, 456, 458, 463, 464, 466, 467, 468, 522; vi. 3, 4, 11, 12, 19, 21, 22, 23, 32, 39, 47, 48, 57, 205, 210, 327, 328, 360, 361, 362, 404, 405, 408, 424, 429, 431, 434, 437, 438, 441, 442, 444, 446, 447, 448, 449, 450, 451, 453, 461.
Magical plants, v. 62–68.
Magicians, v. 159 — their practices, v. 313—and Magic, a history of, v. 421–429.
Magma, iii. 166.
Magna Græcia, i. 182—described, i. 222.
Magnes, vi. 355.
Magnesia described, i. 296.
Magnet, vi. 209, 355, 356.
Magnetes, i. 471.
Magnitude of the stars, i. 85, 36.
Mago, his writings, iv. 10—quoted, iii. 488; iv. 360, 361.
Magon, i. 212.
Magpie, ii. 508, 522.
Magydaris, iv. 147, 148
Maiæ, ii. 425.
Maigre, ii. 392, 396.
Majorca, i. 211.
Makron Teichos, iii. 208.
Mala, iii. 293.
Malaca, i. 156.
Malache, iv. 284.
Malachite, vi. 429.
Maladies, in which wine should be administered, iv. 274, 275, 276—peculiar to various nations, v. 271, 272.
Malaga, i. 156.
Malea, i. 283.
Maledictions, iii. 82.
Maleus, ii. 46.
Maleventum, i. 229.
Maliac Gulf, i. 293.
Mallet-shoots, iii. 148.
Mallos, i. 447.
Mallow-tree, iv. 156.
Mallows, iv. 218, 282–285.
Malobathrum, iii. 153; iv. 493.
Malope, iv. 284.
Maltha, i. 138, 139; vi. 375.
Malum terræ, v. 288.
Malundrum, v. 167, 168.
Malvane, i. 385.
Malvoisie, iii. 244.
Mamertine wines, iii. 242.
Mammæ, iii. 82.
Mamurra, vi. 324.
Man, his obligations to Nature, ii. 117 — the only tearful animal, 118—his helplessness, 119 — the frail tenure of his life, 120—his inhumanity to man, 120 — diversified powers and might of Nature displayed in, 121—his brain, iii. 47, 48—his face, 49—his forehead, 49—his eyebrows, 49 — his eyes, 49, 50, 51—peculiarities in his members, 86—resembled by the ape, 86, 87—his audacity, iv. 130, 131—remedies derived from, v. 276, 277, 278, 286, 287, 288.
Mancinus, L. H. vi. 231.
Mandi, ii. 133.
Mandragora, v. 138, 139, 140.
Mandrake, of Scripture, iv. 397—superstitions as to, v. 139.
Manes, existence of the, ii. 218.
Manfredonia, i. 227.
Manganese, vi. 330, 380.
Mangrove, iii. 117.

Mani, ii. 455, 456.
Manilius, M. ii. 554—his alleged work quoted, i. 19, 26, 57.
Manilius Antiochus, vi. 302.
Manna, iii. 115, 128; v. 25.
Manteium, ii. 8.
Mantichora, ii. 280, 297.
Mantinea, i. 286.
Mantua, i. 252.
Manure, iii, 456–460, 472, 481.
Manuring, of trees, iii. 531, 532—of land, iv. 68, 69.
Mapalia, i. 387.
Maple, iii. 367; v. 21.
Marathon, i. 290—battle of, vi. 248.
Marble, i. 388, 496; iii. 439; vi. 306–309, 323–328—coloured, vi. 224.
Marcasite, vi. 440.
Marcellus, M., ii. 166; iii. 68; vi. 390.
March, Ides of, iv. 84.
Marchantia, v. 161.
Marcia, i. 81.
Marcian Waters, v. 487
Marcion, v. 369.
Marcipor, vi. 81.
Mare that conquered when with foal, ii. 543.
Mareotis, Lake, i. 401, 419.
Mares impregnated by the wind, i. 365; ii. 322.
Margarides, iii. 175.
Margiane, ii. 31.
Margus, ii. 31.
Maria, tomb of, vi. 409.
Mariandyni, ii. 3.
Marius, C., i. 176, 195, 199; ii. 485; iii. 88, 89; iv. 13; vi. 73, 136.
Mariva, ii. 89.
Marjoram, iv. 268, 334, 335.
Market-dues, iv. 152, 153.
Marl, iii. 453, 454, 455.
Marmaridæ, i. 397.
Marmaritæ, v. 64.
Maronean wine, ii. 236.
Marriage customs, ii. 336; iii. 315, 316; v. 382.
Marrow, iii. 63, 76; v. 327—spinal, iii. 76, 77—human, produces serpents, ii. 345.
Marrubium, iv. 290, 271, 292.
Mars, ii. 23—Ultor, vi. 206.
Marsi, ii. 126; v. 81.
Marsian War, ii. 137; iii. 329, 332.
Marsus, Domitius, vi. 221.
Marsyas, i. 234, 461, 462; ii. 231; iv. 307; v. 478, 479.
Marsyas of Macedon, iii. 157.
Marten, ii. 308.
Martial quoted, i. 92, 122, 249; ii. 333; iv. 184, 430; v. 19; vi. 80, 92, 131, 132, 182, 286, 402.
Martinet, ii. 521.
Marum, iii. 147.
Marvellous works in Egypt, vi. 334–340.
Marvels connected with fire, vi. 383.
Masks of Comedy, v. 134.
Masinissa, i. 387. 391—ii. 150, 201.
Maspetum, i iv. 146.
Massagetæ, ii. 34.
Massaris, iii. 155; iv. 461.
Massæsyli, i. 383.
Massic wine, iii. 241.
Massica, i. 195.
Massicot, vi. 240.
Massilia, i. 177—wines of, iii. 242.
Mastich, iii. 132; v. 17, 19, 20.
Mastos, v. 214.
Masts, invention of, ii. 235.
Mastya, ii. 3.
Matapan, i. 282.
Mattiacum, v. 479.
Mauri, i 385.
Mauritania, the two kingdoms of, i. 374.
Maurusii, i. 383.
Mausoleum described, vi. 316, 317.
Mausolus, v. 106; vi. 316, 324.
Maximus, the dwarf, ii. 157.
Maxula, i. 390.
Mead, iii. 261.
Meal, various kinds of, iv. 441, 442.
Measures, Greek and Roman—*See* "Introduction to vol. iii."—invention of, ii. 226.
Mecenius, Egnatius, slays his wife, iii. 252.
Mecon aphrodes, v. 261.
Meconis, iv. 231.
Meconitis, vi. 453.
Meconium, iv. 277,
Medea, i. 258, 268, 306; ii. 10; v. 81; vi. 453.
Media described, ii. 28, 69.
Medica, iv. 53, 54.
Medicaments for trees, iii. 532, 533, 534.
Medicinal compositions, remarks in disparagement of, iv. 439, 440.
Medicinal remedies borrowed from animals, ii. 291–294.
Medical art, origin of the, ii. 224; v. 370—the frauds of, 3—the practice of, 156, 157, 158, 376–381—changes in the system of, 374.
Mediolanum, i. 247.
Medion, v. 255.
Mediterranean, trees and shrubs of, iii. 209, 210.
Medius, iv. 302.
Medusa, ii. 106.
Medusæ, vi. 46.
Medlar, iii. 314; iv. 512.
Megabyzus, vi. 261, 275.
Megalium, iii. 164.
Megara, i. 289—iv. 244—prophecy of the fall of, iii. 418, 419.
Megaris, i. 288.
Megasthenes, i. 499.
Megisba, ii. 53.
Mela, M. Annæus, iv. 174.
Mela, Pomponius, i. 268—quoted, i. 177, 336, 337, 364, 403, 405.
Melamphyllos, iv. 421.
Melampodes, ii. 179—understood the language of birds, 530.
Melamprasion, v. 236.
Melampsythium, iii. 248.
Melanætos, ii. 481.
Melanchlæni, ii. 11.
Melancholy, remedies for, v. 355.
Melancoryphus, ii. 511; vi. 428, 442.
Melancranis, iv. 361.
Melandrya, ii. 385.
Melanthion, iv. 270, 271.
Melanthius, vi. 245, 303.
Melanurus, vi. 9, 63.
Melas, i. 449.
Meleager, i. 275, 322.
Meleagrides, ii. 507; iv. 151.
Meles, ii. 310.
Melichloros, vi. 460.
Melichrus, vi. 460.
Melichrysos, vi. 436.
Melicraton, iii. 261.
Melilote, iv. 330, 335, 336, 374.
Melinum, iii. 161; iv. 497; vi. 238.
Melissophyllum, iv. 247, 248, 340, 373, 374.
Melissus, C. Mæcenas, ii. 240; v. 299.
Melitæi, i. 267.
Melite, i. 267.
Melitene, i, 442; ii. 7.
Melitinus, vi. 360, 361.
Melitites, iii. 250; iv. 438.
Melligo, iii. 6.
Melons, iv. 158.
Melothron, iv. 466, 467.

Members of man, peculiarities in, iii. 86.
Memnon, ii. 99—birds of, 506—statue of, vi. 328, 329.
Memnonia, vi. 453.
Memnonides, ii. 506; iv. 151.
Memory, ii. 164, 165—loss of, 165—seat of, iii. 88.
Memphis, i. 409.
Menæchmus, i. 372; vi. 145, 182, 183.
Menander, ii. 357; iv. 205; vi. 146.
Menander, the poet, ii. 175; v. 423, 523; vi. 323—quoted, iv. 28, 295, 519; vi. 30.
Menapii, i. 353.
Menas, vi. 302.
Mendes, the unguents of, iii. 160, 161.
Menecrates (artist), vi. 302.
Menecrates, the poet, ii. 357.
Menenius Agrippa, vi. 131.
Menestratus, vi. 317.
Meninx, i. 402.
Menismini, ii. 135.
Menodorus, vi. 187.
Menogenes the cook, ii. 147.
Menstrual discharge, ii. 151, 152—marvels connected with, v. 304–307.
Menstruation, ii. 150, 151, 152; iv. 199.
Mentastrum, iv. 256.
Mentor, the artist, ii. 185; vi. 135, 138.
Mentor and the Lion, ii. 271.
Mephitis, Temple of, i. 122.
Mercurialis, v. 92, 93, 94.
Merges, iv. 103.
Merida, i. 366.
Mermaids, ii. 363.
Mer-men, ii. 363.
Meroë, i. 107, 411; ii. 100, 101.
Merois, v. 65.
Merops, ii. 516.
Mesembria, i. 306.
Mesogitic wine, iii. 246.
Mesoleucon, v. 254. 255.
Mesoleucos, vi. 454.
Mesopotamia, i. 444; ii. 70.
Messages, by pigeons, ii. 519.
Messala, the censor, ii. 147.
Messala, M. V., ii. 477; vi. 144—owed his healthiness to wine, iii. 243.
Messala, vi. 221.
Messalina, ii. 541; v. 373.
Messalinus, Cotta, iii. 276.
Messana, i. 217.
Messapia, i. 225.
Messene, i. 282.
Messenia, i. 282.
Messina, i. 217.
Mestus, i. 304.
Metæ, i. 34.
Metagonitis, i. 387.
Metalla, vi. 350, 351.
Metals, soldering of, vi. 111.
Metapontum, i. 224.
Metellus, L., ii. 191, 192; iv. 8.
Metellus, Q., ii. 191, 192.
Metellus, the pontiff, his articulation, iii. 62.
Meteorites, vi. 438.
Meteors, i. 59, 60, 63, 64.
Methone, i. 282, 296.
Methora, ii. 46.
Methymna, i. 487.
Metimanus, ii. 150.
Meton, iv. 127.
Metopium, iii. 161, 162, 288, 289.
Metrodorus, artist and philosopher, vi. 277, 303.
Metrodorus, of Chios, iv. 303.
Metrodorus, of Scepsis, i. 270.
Meum, iv. 295, 296.
Meuse, i. 348.
Mevania, i. 239.
Mica, vi. 369
Micciades, vi. 308.
Mice, of Pontus, ii. 308—that swallow gold, 350, 351—various kinds of, 350 351—prognostics derived from, 350 — that gnaw iron, 350—singing, 351—of the Nile, 472—their fecundity, 544, 545—remedies derived from, v. 392. *Also see* "Mouse."
Micipsa, i. 391.
Micon, vi. 141, 186, 241, 249, 281.
Mictis, i. 351.
Micton, iv. 303.
Midas, vi. 71.
Migration of birds, ii. 503–506.
Milan, i. 247, 248.
Mildew, iii. 529; iv. 96, 97.
Miletus (place), i. 466, 467.
Miletus (*writer*), v. 368.
Milfoil, v. 61, 221.
Miliaria, iv. 455.
Militaris, v. 68.
Military services, gifts for, vi. 86.
Milk, offerings of, i. 4—particulars relative to, iii. 83—in woman, 83—in animals, 83—what is the thinnest, 84—the richest, 84—curdled, iv. 257, 258—impregnated by plants, v. 116—of Arcadia, 116—woman's, remedies from, 302, 303—medicinal uses of, 319–322.
Milky Way, iv. 98.
Millefolium, v. 61.
Millepedes, v. 417.
Millet, iv. 38, 444—wine from, iii. 256.
Milliarium aureum, i. 203.
Millstones, vi. 359.
Milo, T. Annius, i. 88; vi. 346, 347.
Milo, the wrestler, ii. 161; vi. 440.
Miltiades, vi. 248.
Miltites, vi. 363, 364.
Miltos, vi. 120.
Miltwaste, v. 228, 229.
Mimas, i. 469.
Mimosa, iii. 184; v. 43, 67.
Mind, greatness of, ii. 166—vigour of, 166.
Mineral waters, v. 485, 494, 495, 496—extravagant use of, 496.
Minerals of Spain, i. 173, 174.
Minerva Musica, vi. 180.
Minium, vi. 119, 120–124.
Minorca, i. 211.
Minos, ii. 89.
Minsas, v. 63.
Mint, iv. 192, 193, 256–259.
Minturnæ, i. 195.
Minute works of art, ii. 163; vi. 184, 323.
Minyanthes, iv. 375.
Miraculous properties of wines, iii. 262.
Mirage, ii. 135.
Mirmillo, ii. 148.
Mirror-stone, iv. 344; vi. 368, 369.
Mirrors, vi. 126, 127, 214, 280, 422.
Misenum, i. 196.
Mistletoe, iii. 391, 433–436; v. 5, 6.
Mists, i. 91—prognostics derived from, iv. 122.
Misy, iv. 144; vi. 198, 199, 200.
Mithrax, vi. 453.
*Mithridate*, iv. 515; v. 79, 180, 380.
Mithridates, King, i. 339; ii. 19; iv. 515; v. 78, 79, 102; vi 92, 390, 451, 467—his extraordinary memory, ii. 165.
Mithridatia, v. 102.
Mitra, ii. 91.
Mitulus, vi. 41.
Mitylene, i. 487, 488.
Mnaseas, vi. 467.

Mnason, vi. 267.
Mnemonics, ii. 165.
Mnemosyne, fountain of, v. 477.
Mnesides, iii. 158.
Mnesigiton, ii. 243.
Mnesitheus, iv. 388.
Mocha-stone, vi. 440.
Modellers, ancient, vi. 284, 285, 286.
Modelling, the art of, vi. 283, 284, 285.
Modena, i. 242.
Modogaliuga, ii. 45.
Mœnus, ii. 384.
Mœris, Lake, i. 409; vi. 336.
Mœsia, i. 264.
Molar stones, vi. 359.
Molemonium, v. 168.
Moles (abortions), ii. 151.
Moles (animals), ii. 353—have no sight, iii. 50—remedies derived from, v. 429.
Mollugo, v. 192, 193.
Molluscum, iii. 368.
Mollusk, vi. 65.
Molochitis, vi. 429.
Molon, v. 165. 166.
Moly, v. 87, 88.
Molybdæna (plant), v. 141, 142.
Molybdæna (metal), vi. 112, 118. 218, 219.
Molybditis, vi. 117.
Mona, i. 109, 351.
Monapia, i. 351.
Monarchy, ii. 227.
Monboddo, Lord, his theory, ii. 134.
Mongols, ii. 9, 15.
Monkeys ii. 347.
Monoceros, ii. 281.
Monochromes, vi. 247.
Monocoli, ii. 130.
Mons Sacer, the secession to, iv. 152, 153.
Monsters, human, ii. 136, 137; iii. 95.
Month, work to be done in each, iv. 81–108.
Moon, particulars connected with the, i. 31–34, 36–40—its effect upon fish, ii. 424—its influence, iii. 415, 417, 480; iv. 97, 107, 110, 111—revolutions of, 111, 112—conjunction of, 101—prognostics from, 119, 120.
Moons, several seen at once, i. 63.
Moral disposition, indications of from the appearance, iii. 96.
Morbus pediculosus, ii. 191, 209.
Morimarusa, i. 342.
Morini, i 353.
Morion, v. 138, 139, 140.
Mormorion, vi. 453.
Mormyr, vi. 65.
Morochthos, vi. 453.
Morphew, remedies for, v. 461.
Morphnos, ii. 482.
Morse, iii. 57.
Mortar, vi. 373.
Mortars, stones for, vi. 367.
Mosa, i. 348.
Mosaic pavements, vi. 378, 379.
Moses, v. 425.
Moss, iii. 154; v. 499.
Moss agate, vi. 440.
Mossylum, ii. 96.
Motacilla, ii. 551; vi. 446.
Moths, iii. 22, 41.
Motions of the stars, i. 47, 48.
Mountain green, vi. 107, 108.
Mourning, signs of, iii. 398.
Mouse, of Egypt, ii. 308—increase of its liver, iii. 70. *And see* "Mice."
Mouse-barley, iv. 445, 446; v. 250.
Mouth, the grasshopper has none, iii. 32—remedies for sores of the, v. 431.
Mouths of the Nile, i. 420
Mucianus, L., i. 148; ii. 138.
Mucianus, the augur, ii. 487.
Mud-mullet, ii. 402.
Mugwort, v. 107.
Mulberries, iii. 319, 320; iv. 508, 509.
Mule, vi. 457.
Mule-gnat, iii. 21; v. 469.
Mules, ii. 323—their nature, 324, 325—barren, 325—other peculiarities of, 326—shod with gold, vi. 132.
Mulio, iii. 21; v. 469.
Mullet, ii. 397, 398, 401, 402, 403.
Mulsum, ii. 215; iii. 245; iv. 437.
Multipedes, v. 417.
Mulucha, i. 365.
Mummies, the coffins of, iii. 180.
Mummius, his capture of Corinth, vi. 163, 232.
Munatius, P., iv. 307.
Munda, i. 461; vi. 358.
"Mundus," the term, i. 13, 14, 17.
Municipia, i. 154.
Mursena, ii. 394, 407–411; iv. 299; vi. 6, 7—preserves for the, ii. 469.
Murex, ii. 413, 428, 441–445; vi. 29.
Muria, v. 503, 504, 509.
Murrhine vessels, vi. 70, 286. 392, 393, 394.
Murrhitis, vi. 454.
Murviedro, i. 166.
Mus, P. Decius, iv. 393.
Mus cabirinus, ii. 308.
Musa, Antonius, iv. 182; v. 372.
Musæa, vi. 366, 391.
Musæus, iv. 387.
Muscatella wine, i. 195.
Muses, i. 290, 296.
Museum, the Sallustian, ii. 157.
Mushrooms, iv. 428, 429.
Music, theatrical, iii. 408.
Musical inventions, ii. 230—scale applied to the pulsation, v. 372.
Musmon, ii. 339; v. 329.
Mussels, vi. 41—gigantic, vi. 5.
Must, iii. 249, 250—how prepared, 263, 264—properties of, iv. 468, 469.
Mustaceum, iii. 332.
Mustard, iv. 197, 288, 289, 290.
Mustela (fish), ii. 401.
Mutina, i. 60, 142, 242.
Muza, ii. 64.
Muziris, ii. 65.
Mya margarifera, ii. 437.
Myagrus (plant), v. 256.
Myagrus (artist), vi. 188.
Myax, vi. 40.
Mycenæ, i. 284.
Mycon, vi. 152.
Myconian wine, iii. 246.
Myconos, i. 318; iii. 46.
Myes, ii. 436.
Mygdones, i. 299.
Mygdonia, i 301.
Myiagros, ii. 507.
Myiodes, the divinity, v. 408.
Myisca, vi. 41.
Mylasa, i. 463.
Myoctonon, v. 220.
Myosota, v. 255, 256.
Myosotis, v. 255, 256.
Myosoton, v. 224.
Myra, i. 456.
Myriandros, i. 438.
Myrica, iii. 202; v. 29, 30, 31.
Myriophyllon, v. 61.
Myriza, v. 61, 62.
Myrmecides, the sculptor, ii. 163; vi. 323, 454.
Myrmecitis, vi. 459.
Myrobalanum, iii. 142, 143; iv. 495.
Myron, vi. 168, 169, 173, 174, 318.

Myrrh, iii. 129–132—prices of, 131.
Myrrha, v. 61, 62.
Myrrhine. *See* "Murrhine."
Myrrhina, iii. 253.
Myrrhis, v. 61, 62, 195.
Myrsilus, i. 372.
Myrsineum, iv. 296, 297.
Myrsinitis, vi. 454.
Myrtidanum, iii. 257; iv. 521.
Myrtis, v. 195.
Myrtites, iii. 257.
Myrtle, iii. 328—anecdotes relative to, 328, 329—varieties of, 330, 331—used for wines, 331—used in ovations, 331, 332—remedies derived from, iv. 519.
Myrtoän Sea, i. 309, 317.
Myrtopetalos, v. 259, 260.
Mys, vi. 139.
Mysia described, i. 488.
Mystus, wine of, iii. 246.
Myxa plum, iii. 178.
Myxon, vi. 33.

N.

Nabatæi, i. 422; ii. 88; iv. 364.
Nabun, ii. 277.
Nails, the human, iii. 87—peculiarities in the, 87—pairing of, v. 285—maladies of, 458—malformed, vi. 53.
Napata, ii. 99.
Naphtha, i. 139; v. 478; vi. 293, 294.
Naples, i. 197.
Napy, iv. 197.
Narbonensis, i. 174—wines of, ii. 243.
Narbonne, i. 174, 175.
Narcissinum, iii. 161.
Narcissitis, vi. 459.
Narcissus, iv. 316, 367, 368.
Nard, iii. 119, 120, 121; iv. 369, 370—Indian, iii. 165.
Nardinum, iii. 165.
Narona, i. 260.
Narthex, iii. 205.
Nasamones, i. 397; ii. 126.
Nasamonitis, vi. 454.
Nassa, ii. 421.
Nasturtium, iv. 191, 251, 252.
"Nasutus," the term, iii. 55.
Nations, how affected by climate, i. 110, 111—exterminated by animals, ii. 295—modes of cultivation pursued by various, iv. 61—maladies peculiar to certain, v. 271, 272.
Natrix, v. 256.
Nature, considered by Pliny to be identical with God, i. 25—her ingenuity displayed in the insect world, iii. 1, 2—the providence manifested by, iv. 396—her wondrous powers, v. 1—a comparative view of, vi. 464.
Naucerus, vi. 183.
Naucratis, i. 408, 421.
Naucydes, vi, 169, 183.
Naulochum, i. 277, 467
Naumachia, iii. 416, 419.
Naupactus, i. 275.
Nauplius, sailing, ii. 422.
Nausicaa, vi. 265.
Naustathmus, i. 218.
Nautilus, ii. 419, 429.
Navalia, vi. 321.
Navel-wort, v. 143.
Navigation, i. 97, 98.
Navius, Attus, iii. 310, 311; vi. 157.
Nasica, Scipio, ii. 179.
Naxos, i. 320–stone of, vi. 327.
Nealces, vi. 266, 279, 280.
Neapolis, i. 197.
Nearchus, ii. 115.
Nearer Spain described, i. 164.
Nebritis, vi. 454, 460.
Necepsos, i. 148.
Nechthebis, vi. 332, 341.
Neck, iii. 63—remedies for pains in the, v. 343.
Necklaces of amber, vi. 401.
Necron, Isle of vi. 395.
Nectarites, iii. 259.
Negropont. i. 316.
Nemausum, i. 179, 180.
Nemea, i. 287.
Nemean Games, iv. 192.
Nemesis, i. 290; vi. 310—seat of, iii. 88.
Nenuphar, v. 107.
Neoptolemus of Paros, iii. 100.
Nep, iv. 261, 262.
Nepos, Cornelius, i. 147.
Nereïds, ii. 363, 364.
Neritus, i. 311.
Nero, the Emperor, i. 279, 288; ii. 26, 99, 149; iii. 92, 137; iv. 15, 428; v. 358; vi. 109, 167, 175, 183, 185, 216, 246, 261, 393, 402, 403, 409—his birth, ii. 143—his sight, iii. 51—his use of thapsia, 206—his study of magic, v. 428.
Nero, Tiberius, his rapid journey, ii. 162.
"Nervus," the term, ii. 160; iii. 77.
Nervii, i. 354.
Nepenthes, iv. 377; v. 81.
Nests of birds, ii. 513, 514, 515.
Nettle, iv. 351, 352, 402, 403, 404—eaten, 352.
Neuras, v. 128, 129, 262.
Neuroïdes, iv. 233.
Neurospastos, v. 49.
New birds, the, ii. 529.
New Carthage, i. 157, 163, 170.
Niam Niams, the, a people with tails, ii. 134.
Nicæa, i. 184, 493.
Nicæus, the wrestler, ii. 145, 146.
Nicander, ii. 357.
Nice, i. 184.
Nicephorion, ii. 71.
Niceratus (artist), vi. 183, 186.
Niceratus (writer), v. 523.
Niceros, vi. 268.
Nicias (artist), vi. 275, 276.
Nicias (general), i. 35.
Nicias (writer), vi. 467.
Nicknames, ii. 147.
Nicobulus, iii. 157.
Nicolaüs of Damascus, iii. 176.
Nicomachus, vi. 245, 267, 268.
Nicomedes, King, ii. 313.
Nicomedia, i. 494.
Nicophanes, vi. 268, 297.
Nicopolis, i. 274; ii. 19.
Niger, Sextus, iii. 156.
Niger, Trebius, ii. 355.
Niger, river, i. 382.
Night-hawk, ii. 488, 539.
Nightingale, ii. 509, 510—white, ii. 510.
Nightmare, ii. 316; v. 89, 256, 449.
Nightshade, iv. 384, 385, 386; v. 266.
Nigidius Figulus, ii. 114—quoted, 152.
Nigris, i. 395, 404; ii. 281.
Nigritæ, i. 404.
Nile, alluvion of the, i. 117; iii. 186; v. 81—description of, i. 410—promoter of fertility, ii. 135, 136—mice of the, 472—water of, like glue, iii. 189.
Nilion, vi. 429.
Nilometer, i. 414.
Nineveh, ii. 27. 70.
Ninguaria, ii. 108.
Ninus, the city, ii. 27, 70.
Niobe, the fountain, i. 284.
Niobe and her children, the group of, vi. 315.
Nipparene, vi. 454.
Nipples, only in man the male has them, iii. 82.

Nismes, i. 179, 180.
Nisus (bird), ii. 551.
Nisyros, i. 484, 485.
Nitre, iv. 164.
Nitrum, v. 512–519.
No, i. 416, 418.
Noctua, ii. 492.
Noir antique, vi. 325.
Nola, i. 198.
Nomades, i. 335, 387; ii. 83, 90, 134.
Nomenclator, vi. 81.
Nomentum, i. 233—vines of, iii. 223.
Nomes of Egypt, i. 407.
Nonacris, i. 287.
Nonius Struma, vi. 416.
Norici, i. 262.
Northern regions of Europe described, i. 339.
Nostrils, the, iii. 55, 56—exponents of ridicule, 55 — discharges of blood from, 79 — remedies for diseases of, v. 145, 150.
Notia, v. 71; vi. 454.
Novara, i. 247.
Novaria, i. 247.
Nulo, Mount, ii. 130.
Numa, Pompilius, i. 84, 233; iv. 4; vi. 10—his books discovered, iii. 191 192—his law on wine, 252.
Numantia, i. 171; vi. 132.
Numenius, ii. 86.
Numidia, described, i. 387—the marble of, vi. 325.
Numidicæ, ii. 528.
Nundinæ, iv. 6, 7; v. 285.
Nurseries for plants, iii. 464–467.
Nus, the river, v. 477.
Nut, the several varieties of, iii. 315–319.
Nut-galls, iii. 350.
Nutriment, iii. 97.
Nyctalopy, ii. 341; iv. 335; v. 336, 337.
Nyctegreton, iv. 335.
Nyma, v. 256.
Nymphæ, iii. 17.
Nymphæa, v. 107.
Nymphæa heraclia, v. 132.
Nymphæa nelumbo, iv. 45.
Nymphæa pteris, v. 245, 246
Nymphæum, i. 142, 261.
Nymphæus, i. 295.
Nymphodorus, i. 270.
Nysa, ii. 50.

O.

Oak, i. 285; iii. 341, 342.
Oar, invention of the, ii. 235.
Oasites, i. 409.
Oats, iv. 54, 55, 56, 446, 455.
Obelisks, iii. 419; vi. 331–334—at Rome, vi. 333, 334, 335.
Obliquity of the zones, i. 102.
Obsian glass, vi. 381.
Obsian stone, vi. 381, 382, 455, 463.
Obsidian, vi. 381, 382, 455, 463.
Occhus, iii. 115.
Oce, iii. 90.
Ocean, surrounding the earth, i. 98, 99, 100.
Ocelis, ii. 64.
Ochra, vi. 237.
Ochre, vi. 235, 236, 363—red, 120—yellow, 140, 141.
Ocimoïdes, v. 55, 56.
Ocimum, iv. 191, 249, 250, 356—cursed when sown, 178.
Ocinum, iii. 511; iv. 52, 53.
Ocriculum, i. 191, 239.
Ocrisia, vi. 394.
Octavius, Cneius, vi. 158, 159.
Oculata, vi. 63.
Oculus, iii. 496.
Odd numbers, v. 287.
Odinolytes, vi. 4.
Odontitis, v. 257.
Odours, the nature of, iv. 321, 322, 323.
Odrysæ, i. 303.
Œa, i. 393, 401.
Œnanthe, ii. 511, 512; iii. 155, 161; iv. 380, 460—oil of, iv. 488, 489.
Œnanthinum, iii. 255, 289.
Œneus, i. 275.
Œnophorus, vi. 177.
Œnopides, iv. 128.
Œsophagus, iii. 64.
Œsypum, iii. 133; v. 383, 384, 385.
Œtum, iv. 349.
Ogygia, i. 223.
Oica, vi. 454.
Oil, first use of, ii. 226—of œnanthe, iv. 488, 489—of almonds, 490—of laurel, 490, 491—of chamæmyrsine, 491—of cypress, 491—of citrus, 491—of walnuts, 491—of Cnidium, 491—of mastich, 491—of balanus, 492—of cyprus, 492—of balsamum, 492, 493—of henbane, 493—of lupines, 493—of narcissus, 493—of radishes, 493, 494—of sesame, 494—of lilies, 494—of Selga, 494—of Iguvium, 394—of pitch, 494. *And see* Olive oil.
Oils, artificial, iii. 162, 163, 286–291; iv. 488–494.
Oleander, v. 37.
Oleaster, iii. 285, 287.
Olenum, i. 280.
Oleron, i. 360.
Oliaros, i. 319.
Olisipo, i. 364, 365; vi. 422.
Olive, Indian, iii. 111—of Arabia, 135—omphacium made from, 154—the history of, 277—its introduction into Europe, 277—its growth, 277, 278—its nature, 278—varieties of it, 278–284—victors crowned with its leaves, 284, 285—culture and preservation of, 285, 286—wild, 418, 419—aged trees of, 430, 431—culture of, 486, 487, 488—leaves of, iv. 484—blossom of, 484, 485.
Olive oil, iii. 278, 279—where produced, 279, 280—its qualities, 280, 281—nature of, 284—making of, 286, 286—remedies derived from, iv. 488.
Olives, white, iv. 485—black, 486.
Ollar stone, vi. 368.
Ololygones, iii 62.
Olusatrum, iv. 193, 194, 248.
Olympia, i. 281—Games at, ii. 232; v. 408, 493.
Olympiads, i. 281.
Olympias of Thebes, iv. 302.
Olympias, wind, iii. 523.
Olympicus, vi. 468.
Olympiodorus, iii. 157.
Olympus, i. 295, 489.
Olynthos, i. 304.
Olyra, iv. 441.
Olyros, i. 280.
Omani, ii. 83.
Ombre (fish), ii. 393.
Ombria, vi, 454.
Omens, iii. 94, 313, 336—from poultry, 479—from birds, 509—from bees, iii. 19—evil, 68—fortunate, 70—from trees, 395. *Also see* "Portents."
Omentum, iii. 73.
Omphacium, iii. 153, 154, 255, 459, 460, 488.
Omphalocarpos, v. 227, 228.
On, i. 418.
Onager, ii. 324; v. 332, 351.
Onear, v. 196.
Onesicritus, i. 150; ii. 60.
Onions, iv. 168, 169, 171, 173, 176, 222.
Onitis, iv. 268.
Onobrychis, v. 62.

Onochilis, iv. 356.
Onochilon, iv. 410, 411.
Onoclia, v. 238.
Onopordon, v. 258.
Onopyxos, iv. 353.
Onosma, v. 257.
Onotheres, v. 196.
Onyches (fish), ii. 428, 475.
Onyx, vi. 329, 419, 420, 431.
Oönæ, i. 342.
Opal, vi. 415, 416, 417, 436, 437.
Ophicardelon, vi. 455.
Ophiogenes, ii. 125; v. 237.
Ophion, v. 329.
Ophir, vi. 380.
Ophites, vi. 327, 367.
Ophiusa, v. 65.
Ophrys, v. 214, 215.
Ophthalmic preparations, iv. 208; vi. 367.
Opici, v. 376.
Opilius, Aurelius, v. 368.
Opimian wine, ii. 237; iii. 254.
Opium, iv. 230, 231, 275, 276. 277.
Opobalsamum, iii. 149.
Opocarpathon, v. 332; vi. 25, 40.
Opopanax, iii. 152.
Oporice, v. 52.
Oppius, C., iii. 99.
Opuntia, iv. 358.
Opus, i. 292.
Orach, iv. 419, 420.
Orage, iv. 282, 283: v. 241.
Orange (town), i. 178.
Orata, Sergius, ii. 468.
Oratis, ii. 67.
Orbis (fish), vi. 7, 9, 24.
Orca, ii. 365, 366.
Orcades, i. 351.
Orchis, v. 189, 190, 240.
Orchomenus, i. 286, 294—seed of, iii. 405, 406, 407.
Orcus, i. 296.
Oreoselinon, iv. 180, 248.
Orestes, his body found, of gigantic size, ii. 156.
Origanum, iv. 266, 268; v. 90—Heracleotic, iv. 266-270.
Orion, ii. 156.
Orios, v. 259, 260.
Oritæ, ii. 134.
Oritis, vi. 454.
Ornithogale, iv. 357, 358.
Orobanche, iv. 455.
Orobethron, v. 172.
Orobia, iii. 128.
Orobus, iv. 51.
Orodes, ii. 31.
Orontes, i. 437, 438.
Oropus, i. 280.
Orpheus, i. 303, 305; iv. 301; v. 423.
Orphus, ii. 395.
Orpiment, vi. 104, 105, 220.
Orpine, v. 67.
Orthagoriscos, vi. 9, 24.
Ortolan, ii. 504.
Ortospanum, ii. 41.
Ortygia, i. 319.
Ortygometra, ii. 504.
Oruros, ii. 72.
Oryges, ii. 346.
Oryx, i. 67; iii. 89, 90—its body a preventive of thirst, ii. 550.
Oscines, ii. 495.
Osiris, i. 417.
Osiritis, v. 429.
Ossa, i. 295.
Osseous stones, vi. 358.
Ossifrage, ii. 487.
Ossuna, i. 161.
Osthanes, v. 277, 365, 366, 424, 425.
Ostia, i. 192—construction of the harbour at, ii. 366 iii. 420; vi. 333.
Ostraceum, vi. 55.
Ostracias, vi. 455.
Ostracites, vi. 360.
Ostracitis, vi. 444, 455.
Ostrich, ii. 478, 479.
Ostrys, iii. 202, 203.
Osyris, v. 258.
Otho, M., iii. 167.
Othoninum, iv. 135.
Othonna, v. 257.
Otis, ii. 500.
Otranto, i. 226.
Otter, vi. 35.
Otus, ii. 156, 504.
Outline painting, vi. 229.
Ovations, myrtle used in, iii. 331, 332.
Ovid, his birth-place, i. 231—his place of banishment, 306—his "Halieuticon," ii. 391—vi. 6, 65—probably mistranslated by Pliny, iii. 352—mentioned, iv. 126—his works quoted, i. 4, 19, 26, 38, 43, 44, 82, 84, 100, 119, 131, 135, 199, 214, 219, 232, 234, 243, 258, 265, 306, 472, 493; ii. 90, 106, 338, 409, 545; iii. 44, 82, 133, 332, 385, 424, 529, 535; iv. 44, 84, 99, 197, 293, 337, 346, 426; v. 41, 283, 397, 434, 474, 476, 477; vi. 6, 7, 65, 66, 68, 173, 187, 206, 260, 264, 277, 315, 318, 345, 397.
Oviedo, i. 172.
Oviparous animals, ii. 532.
Ovum anguinum, v. 389.
Owl, horned, ii. 492.
Owlet, ii. 492, 494.
Oxalis, iv. 287.
Oxen, the generation of, ii. 326, 327—of the best quality, 327 — peculiarities in, 329 — not killed by the ancients, 328 — with powers of speech, 330—fed on fish, iii. 98.
Oxus, ii. 32.
Oxycedrus, iii. 178.
Oxygala, v. 323, 324.
Oxylapathum, iv. 287.
Oxymeli, iii. 261; iv. 481.
Oxymyrsine, iv. 521; v. 143.
Oxys, v. 268.
Oxyschœnos, iv. 361.
Oyster-beds, i. 196—artificial, ii. 467, 468.
Oyster-bread, iv. 39.
Oysters, ii. 458, 463, 464, 468, 469; vi. 25-28 — of neither sex, ii. 546—have no hearing, 547 — have sense of touch, 548—when wholesome to eat, vi. 26—of gigantic size, vi. 27, 28.
Ozæna, ii. 420.
Ozænitis, iii. 120.
Ozoiæ, i. 276.

P.

Pachynum, i. 217, 218.
Pactolus, i. 465.
Pacuvius, vi. 230.
Padua, i. 252.
Padus, i. 243, 246.
Padusa, i. 244.
Pæanitis, vi. 456.
Pædagogus, vi. 88.
Pæderos (plant), iv. 421.
Pæderos (stones so called), vi. 417, 433, 436.
Pænula, ii. 333.
Pæonia, v. 88, 89, 248, 249.
Pæstum, i. 208.
"Pætus," origin of the name, iii. 53.
Pagæ, i. 278, 288.
Pagasa, Gulf of, i. 324.
"Page," origin of the English word, vi. 88.
Pagur, ii. 425; vi. 48.
Pain, endurance of, ii. 164—intensity of, v. 86, 87.
Painters, journeymen, thefts by, vi. 122, 123—celebrated, 246-268.
Painting, the art of, ii. 184; vi. 223, 224, 228, 229, 230, 231, 232, 234, 235, 245, 246-252—invention of, ii. 236—use of chrysocolla in, vi. 108, 109 — cinnabaris used in, vi. 121, 122 123.

Pala, iii. 110.
Palæmon, Rhemmius, his successful culture of the vine, ii. 235, 236.
Palæogoni, ii. 51.
Palæphatus, v. 420.
Palæsimundus, ii. 53.
Palæstina described, i. 425.
Palamedes, ii. 229.
Palantium, i. 286.
Palatium, i. 286.
Palencia, i. 171.
Paleness, how produced, v. 328.
Palibothra, ii. 42, 43, 45.
Palimpissa, v. 18.
Palinurum, i. 208.
Palinurus, i. 208.
Paliurus, iii. 200, 381; v. 46.
Palladium, rescue of the, ii. 192.
Palladius quoted, iv. 303.
Pallene, i. 300.
Pallium, vi. 275,
Palm, iii. 169–174, 200, 460; iv. 494, 495—leaves of, iii. 377—used for writing, 186—wine from the, 257.
Palm (a measure), vi. 290.
Palm-stones, vi. 358.
Palma, i. 211, 235.
Palmensian wines, iii. 242.
Palmyra, i. 445.
Paludamentum, iv. 390.
Palus Mæotis, i. 98, 99, 326; ii. 1, 2, 14.
Pampeluna, i. 169.
Pamphagi, ii. 104.
Pamphile, iii. 26.
Pamphilus, the actor, ii. 147.
Pamphilus, the artist, vi. 255, 273.
Pamphylia described, i. 452.
Panaces, asclepion, v. 89—heracleon, 90, 94—chironion, 90—centaurion or pharnacion, v. 90, 91—siderion, 91.
Panænus, vi. 247, 248, 374.
Panætius, i. 498.
Panathenaicon, iii. 161.
Panax, iii. 152; iv. 203, 265.
Pancaste, vi. 259.
Panchrestos, iv. 509, 510, 511.
Panchrus, vi. 455.
Panchrysos, ii. 94.
Pancration, iv. 234.
Pancratium (plant), v. 261, 262.
Pandæ, ii. 48.
Pandion, King, ii. 65.
Pandore, ii. 133.
Panels for painting, iii. 414.
Paneros, vi. 455.
Pangæum, i. 302, 303.
Pangonus, vi. 455.
Panhormus, i. 218.
Panic (grain), iv. 21, 38, 444.
Panormus, i. 280.
Panorpis, iii. 30, 35.
Panotii, i. 343.
Pantellaria, i. 403.
Panthera, or leopard, its gratitude, ii. 272, 273—description of, 274—singular antidote used by, 293—remedies derived from, v. 219.
Pantherinæ, iii. 196.
Panticapæum, i. 327, 334.
Panticapes, i. 332.
Papaverata, ii. 337.
Paper, the discovery of it, iii. 185, 186—how made, 186, 187—various kinds of, 186-190—qualities of, 189, 190—defects in, 190, 191—scarcity of, 193—remedies derived from, v. 37.
Paphlagonia described, ii. 3.
Papirius, L., ii. 140—his vow, iii. 253.
Pappus, iii. 204; iv. 354; v. 146, 147.
Paps of animals, iii. 82, 83.
Papyrus, iii. 185–189, 193; v. 36. *Also, see* "Paper."
Parabeste, ii. 57.
Parætonium (place), i. 397.
Parætonium (a plaster), vi. 238.
Parallon, iv. 279, 280.
Paralios, v. 179.
Parallels, division of the earth into, ii. 110.
Paralysis, remedies for, v. 450.
Parapanisus, the river, i. 341.
Parapotamia, iii. 155.
Parasitical insects, ii. 459; iii. 40.
Parasitical plants, iii. 207, 208, 433, 434; iv. 199.
Parchment, invention of, iii. 186.
Pard, ii. 265, 272, 274, 250.
Pardalianches, ii. 293; v. 218–222.
Pardalion, v. 252.
Pardalios, vi. 460.
Pardalium, iii. 161.
Pardon of the gods, how asked, iii. 88.
Parentalia, iv. 44.
Pargetting, vi. 374.
Parian Chronicle, i. 319.
Parian marble, vi. 309.
Parietary, iv. 357.
Parilia, iv. 159.
Parisii, i. 356.
Parks for wild animals, ii. 345.
Parma, i. 183, 242.
Parmenio, i. 473.
Parmeniscus, iv. 127.
Parnassus, i. 277.
Paropanisus, the mountains of, ii. 33, 46.
Paros, i. 319.
Parra, ii. 512; iv. 101.
Parrhasia, i. 286.
Parrhasius, vi. 251–254.
Parrot, ii. 522, 523—has the hardest head, iii. 47.
Parrot-seed, iv. 350.
Parsley, iv. 192, 246, 247.
Parsnip, iv. 165. 166, 218, 219, 222; v. 124.
Parthenion, v. 92, 93, 94.
Parthenis, v. 106.
Parthenium, iv. 383, 406, 407.
Parthenope, i. 197.
Parthia, described, ii. 68—the waters of, v. 484.
Parthians, their cookery, ii. 531; iii. 107—eat grasshoppers, 32—eat locusts, 37—their tainted breath, 97—their drunkenness, 274—the Roman expedition against, 313—their delicate bread, iv. 40.
Partridge, i. 323; ii. 516, 517; iv. 357, 406, 417—of Paphlagonia has a double heart, iii. 65.
Parturition, methods of facilitating, v. 463, 464.
Pasines, ii. 81.
Pasiteles, vi. 137, 145, 285, 319, 321.
Passagarda, ii. 70.
Passernices, vi. 370.
Paste used for making paper, iii. 191; iv. 443.
Pastern bones, iii. 90.
Pastinaca (fish), ii. 408, 411, 452, 460; vi. 24, 25—venomous, 12.
Pastinaca erratica (plant), v. 124. *Also, see* "Parsnip."
Patala, ii. 51.
Patale, i. 108; iii. 119.
Patara, i. 456.
Patavium, i. 252.
Patetæ, iii. 176.
Patmos, i. 321.
Patna, ii, 43, 45.
Patræ, i. 279.
Patras, i. 279.
Patrobius, vi. 289.
Patrocles the geographer, ii. 39, 115.
Patroclus (artist), vi. 169.

Paul, Saint, i. 201, 267, 297, 300, 304, 447, 456, 457, 491, 492.
Paulinus, Pompeius, vi. 133.
Paulus, L. Æmilius, i. 302; vi. 171, 277, 346.
Pausanias quoted, i. 215, 278.
Pausias, iv. 305; vi. 273, 274.
Pausilypum, i. 214; ii. 467.
Pavements, vi. 376–379.
Paxos, i. 310.
Peaches, iii. 293, 294, 296; iv. 508—of Persia, poisonous, iii. 296—Pliny's singular notions as to, iv. 508.
Peacock, ii. 495, 496—its vanity, 495—fattened for food, 496—remedies derived from, v. 413.
Peahen, ii. 538.
"Pearl," alleged origin of the word, vi. 66.
Pearl oyster, ii. 431, 432, 436, 437.
Pearls, ii. 430–436—when first used at Rome, 440—of Britain, 437—costliness of, 437, 438, 439.
Pears, iii. 300–303—remedies derived from, iv. 502.
Pease, iv. 46.
Pebbles, white and black, ii. 187.
Pectines, ii. 428.
Pectoral, iv. 291.
Pectunculus, vi. 64.
"Pecunia," origin of the word, iv. 5; vi. 89.
Pedius, his supreme happiness, ii. 199.
Pedius, Q., vi. 231.
Pegasi (beasts), ii. 279.
Pegasi (birds), ii. 530.
Pegasus, i. 291.
Pygma, vi. 94.
Pelamides, ii. 385.
Pelagiæ, ii. 444.
Pelasgi, i. 187.
Pelecinon, v. 262.
Pelican, ii. 527, 528.
Peligni, i. 231.
Pelion, i. 295.
Pella, i. 298; v. 491; vi. 264.
Pellitory, iv. 357.
Peloponnesus described, i. 278.
Pelops, his rib, v. 288.
Pelops, the writer, v. 523.
Pelorides, vi. 41.
Pelorus, i. 209, 217, 219.
Pelusium, i. 420.
Peneus, i. 295, 296.
Penicilli, v. 520.
Penicillus, vi. 250.
Pennyroyal, iv. 259, 260, 261.
Pentapetes, v. 122, 123.
Pentadactyli, vi. 62.
Pentaphyllon, v. 122, 123.
Pentapolis, i. 395.
Pentelicus, i. 289.
Pentorobus, v. 88, 89, 248, 249.
Peony, v. 88, 89, 248, 249.
Peparethos, wine of, iii. 247.
Peplis, iv. 280, 281; v. 261.
Pepones, iv. 157, 211.
Pepper-tree, iii. 111, 112, 113, 396.
Pepperwort, iv. 203, 269, 270.
Persea, i. 427.
Peraticum, iii. 116.
Perch, ii. 395.
Percnos, ii. 482.
Perdicium, iv. 357, 383, 406, 407.
Perekop, Gulf of, i. 332.
Perfumes, burnt at funerals, iii. 137—extravagance in, 137—a description of, 160–165—mixed with oil, 166.
Perga, i. 452.
Pergamum, i. 478.
Pergula, iv. 307.
Periander, i. 498.
Peribœtos, vi. 177.
Pericarpum, v. 131, 132.
Pericles, vi. 179—adventure of his slave, iv. 407.
Periclymenos, v. 261, 262; vi. 188.
Perileucos, vi. 456.
Perillus, vi. 168, 187.
Perimula, ii. 47, 431.
Periphoretos, vi. 172.
Peristereon, v. 121, 122.
Peristereos, v. 130.
Periwinkle (plant), iv. 339, 382; v. 57.
Periwinkles (fish), ii. 427, 428, 470—gigantic, 470.
Perna (fish), vi. 66.
Perorsi, i. 404.
Perpressa, iv. 368, 369; v. 186.
Perperene, i. 474; v. 482.
Perrhæbi, i. 271, 275.
Persea, iii. 296.
Persepolis, ii. 69.
Perseus, King, i. 299, 302.
Persia, trees of, iii. 117.
Persian Gulf, ii. 66—trees of, iii. 117.
Persian tree, iii. 182.
Persians, their use of perfumes, iii. 136.
Persica, iii. 296.
Persicon napy, v. 268, 269.
Persis, the province of, ii. 68.
Persolata, v. 124.
Personata, iii. 348.
Pertinax Helvius, i. 186.
Perugia, i. 190.
Perusia, i. 190.
Pescara, i. 231.
Pesoluta, iv. 386.
Pessinus, i. 492.
Petasus, vi. 342.
Petauristæ, iii. 40.
Peter, Saint, i. 426.
Petilium, iv. 328.
Petorita, vi. 215.
Petosiris, i. 148.
Petrichus, iv. 205.
Petrifactions, v. 482; vi. 438, 461.
Petritan wine, iii. 246.
Petroleum, i. 138; v. 478.
Petronius, P., ii. 99.
Petronius, T., vi. 393.
Petroselinum, iv. 248.
Peucedanum, v. 126.
Peucestes, vi. 176.
Peucini, i. 348.
Pezenas, i. 180.
Pezica, iv. 144.
Phædrus quoted, ii. 315; iii. 102; iv. 13.
Phaëthon, i. 243; vi. 397.
Phagrus, ii. 393; vi. 48.
Phalacrocorax, ii. 529.
Phalangion (plant), v. 263.
Phalangitis, v. 263.
Phalangium (insect), ii. 353; iii. 29; v. 400.
Phalaris, v. 264; vi. 187—the first tyrant, ii. 227.
Phaleræ, ii. 170; vi. 77.
Phalerides, ii. 528.
Phalerum, i. 289.
Phallovitroboli, vi. 70.
Phanagoria, ii. 14.
Phanias, iv. 388.
Phaon, i. 274; iv. 398.
Pharanitis, vi. 433.
Pharnaces, ii. 128; v. 90.
Pharos, i. 479; vi. 339.
Pharsalia, i. 294, 295; v. 159.
Pharusii, i. 406.
Pharynx, iii. 62.
Phaselis, oil of, iv. 494.
Phasganion, v. 134, 135.
Phasiolon, v. 251, 252.
Phasis, ii. 10.
Phaulias, iii. 433.
Phausia, v. 482.
Phazania, i. 398.
Pheasant, ii. 528.
Phellandrion, v. 264.
Phellos, i. 456.
Phellusa, i. 488.
Phemonoë, ii. 554.
Pheneus, i. 287.
Phengites, vi. 369, 370.

Pheos, iv. 401.
Pheræ, i. 280, 283, 294.
Pherecydes, i. 112; ii. 209.
Phiala, i. 413; ii. 331.
Phidias, ii. 185; vi. 168, 170, 171, 247, 310, 311.
Philadelphus, Ptolemæus, ii. 92, 93, 94.
Philæ, i. 415.
Philæni, i. 393.
Philanthes, iv. 356.
Philanthropos, v. 71, 227, 228.
Philemon (geographer), i. 373.
Philemon (poet), ii. 555.
Philetæria, v. 102, 103.
Philinus, iv. 303.
Philip, King, i. 300, 304; his wound, ii. 183.
Philippi, i. 304.
Philippopolis, i. 303.
Philippus of Medma, iv. 127.
Philiscus, vi. 319.
Philistides Mallotes, i. 372.
Philistina, i. 245.
Philistion, iv. 302.
Philistus, ii. 356; iii. 100.
Philochares, vi. 229.
Philocles, vi. 229.
Philon, ii. 184; vi. 188.
Philonides, i. 373.
Philostephanus, ii. 242.
Philoxenus (artist), vi. 268.
Philoxenus (poet), vi. 467.
Philtres, ii. 321; iv. 219. *Also, see* "Magic."
Philyra, iv. 306; v. 2.
Philyræ, iii. 366.
Phlegra, ij 300.
Phlegræan Plains, i. 197.
Phlius, i. 280, 281.
Phlogines, vi. 455.
Phlogitis, vi. 460.
Phlomis, v. 127, 128.
Phlomos, v. 127.
Phlox, iv. 333, 334, 336.
Phocæ, ii. 369.
Phocis described, i. 276.
Phœnice (country) described, i. 433.
Phœnice (barley), iv. 445, 446.
Phœnicitis, vi. 456, 459.
Phœnicobalanus, iii. 143; iv. 495.
Phœnicopterus, ii. 528.
Phœnicurus, ii. 511.
Phœnix, ii. 479, 480, 481; iii. 43.
Pholöe, i. 287.
Phonolite, vi. 446.
Phorinean wine, iii. 248.
Phradmon, vi. 168.
Phrenelon, iv. 379.
Phrenitis, remedies for, v. 198, 452, 453.
Phryganea, iii. 42.
Phryganion, v. 455.
Phrygia described, i. 490.
Phrygian stone, vi. 362.
Phryne, vi. 178, 259, 312.
Phrynion, v. 128, 129, 262.
Phthia, i. 294.
Phthiotis, i. 293.
Phthiriasis, ii. 191, 209; iv. 227; v. 206, 468—internal, iv. 165.
Phthirophagi, ii. 11.
Phthisis, remedies for, v. 355, 356.
Phu, iii. 121; iv. 370.
Phycis, ii. 414.
Phycitis, vi. 456.
Phycos, iii. 209, 210.
Phycos thalassion, v. 193.
Phylace, i. 297.
Phylarchus, ii. 241.
Phyllis, iii. 385, 386.
Phyllon, v. 363.
Phyllos, iv. 405.
Physalus, ii. 454.
Physema, ii. 432.
Physeter, ii. 361.
Physicians, an account of, v. 372–376 — their ignorance, v. 377, 378, 380; vi. 120, 121, 194, 195—their avarice, v. 379—their cruelty, v. 381.
Physiognomists, vi. 260.
Physiognomy, observations upon, iii. 96.
Physis, vi. 462.
Phyteuma, v. 263.
Piacenza, i. 242.
Picarel, vi. 45,
Picatum, iii. 238; iv. 476; vi. 371.
Picenum, i. 235.
Picris, iv. 359, 417.
"Pictor," the surname, vi. 230.
Pictures, high prices of, ii. 184.
Picus, ii. 495.
Pie, ii. 515, 522, 523.
Pieria, i. 294.
Pig. *See* "Swine."
Pigeons, an account of, ii. 517–520 — messages by, 519—high prices of, 520.
Pigments, vi. 235.
Pileus, vi. 267.
Pilgrims to Saint Jago, ii. 428.
Pimpernel, v. 137.
Pina, ii. 436.
Pinaster, ii. 292, 356.
Pindar, his name honoured by Alexander, ii. 174—his writings quoted, i. 297.
Pindus, i. 273, 293, 295.
Pine, i. 246; iii. 355, 356.
Pine-nuts, iii. 292; iv. 512.
Pinites succinifer, vi. 397, 401.
Pinna, ii. 450.
Pinnotheres, ii. 426, 451.
Pinus cedrus, iii. 178.
Piombino, i. 187.
Pip (in poultry), ii. 537; v. 32, 41.
Piperitis, iv. 203, 267, 268.
Piræicus, vi. 268.
Piræus, i. 289.
Pirates, ii. 97.
Pisa, i. 287.
Pisæ, i. 287.
Pisaurum, i. 238.
Piscenæ, i. 180.
Pisces, the Constellation, ii. 407.
Pisciculus, Junius, vi. 321.
Pisidia described, i. 451.
Piso, L., i. 147; iii. 67, 273, 276.
Pissasphaltos, iii. 364; v. 18, 19.
Pisselæon, iii. 288; v. 18; vi. 297.
Pissinum, iii. 290; iv. 494.
Pissoceros, iii. 6.
Pistacia, iii. 178.
Pistachio-nuts, iii. 317; iv. 515.
Pistoia, i. 190.
Pistorium, i. 190.
Pistrix, ii. 361.
Pitane, i. 473.
Pitch, iii. 264–267, 361, 362—remedies derived from, v. 17.
Pitch-oil, iii. 290. *Also, see* "Pisselæon."
Pitch-tree, iii. 356, 357; v. 13.
Pitched wines, iii. 238; iv. 476; vi. 371.
Pithecusa, i. 214.
Pituita, ii. 537.
Pityocampæ, v. 404.
Pityus, ii. 12.
Pityusa, i. 312; v. 14, 15.
Pityussæ, i. 211.
Placentia, i. 242.
Plague, its course, ii. 208.
Plaice, ii. 407.
Plaids, probable allusion to, ii. 338.
Planaria, i. 213.
"Plancus," origin of the name, iii. 89.
Plancus, i. 10; ii. 147, 440.
Plane-tree, iii. 103–106 — aged, 431—remedies derived from, v. 20, 21.
Planets, i. 19, 20, 27–31, 40,

41, 42, 48, 49—their influence on human life, ii. 294.
Plangus, ii. 482.
Plant of Fulvius, v. 187.
Plantago, v. 109, 129, 130.
Plants, wines made from, iii. 257, 258—propagated by seed, 460, 461—propagation of, 461–487—prognostics derived from, iv. 125—growth of, 165, 156—roots of, 170—blossoms of, 170, 171—growth of, 177, 178—of which there is but one kind, 179—sown at the autumnal equinox, 197—garden, maladies of, 199, 200—for bees, 339, 340—stems of, 355, 356—leaves of, 356—eared, 357—properties of, 389—for colouring the body, 389, 390—for dyeing, 390, 391—that grow on the head of a statue, v. 68, 69—on the banks of a river, 69—in a sieve, 69—upon a dunghill, 69—moistened with the urine of a dog, 69—wild, 77, 78, 79—delineated in colours, 80—authors who have written upon, 80, 81, 82—medicinal properties of, 83, 84, 85—enquiries of the ancients into, 217, 218—ages of, 270—how their efficacy may be ensured, 271.
Plastæ, vi. 284.
Plaster of Paris, vi. 330.
Plastering, vi, 374.
Plastice, vi. 163.
Platanista, ii. 384.
Platæ, i. 291.
Platea, ii. 522.
Plating, vi. 215.
Plato, i. 148; ii. 174; iv. 436—his works quoted, i. 120; vi. 174.
Platyceros, iii. 44.
Platyophthalmon, vi. 115.
Platyphyllos, v. 188.
Plautus, mentioned, iii. 275—quoted, i. 261, 396; iv. 40, 107, 145, 150, 346; v. 391, 485.
Plinthia, Fountain of, v. 480.
Pliny, addresses Titus Vespasianus, i. 1–11—states the object of his work, 5, 6—the sources whence derived, 6, 7—alludes to his Roman History, 6, 7—inveighs against plagiarism, 7, 8—against empty titles of books, 8—states the general design of his work, 9—his work on Grammar, 9—his contempt for his slanderers, 10, 11—his opinions on the Deity, 20–25—does not believe in a superintending Providence, 22, 23—inveighs against superstition and infidelity, 23—against human pride, 24—considers Nature identical with God, 25—laments the perverseness of mankind, 93—enlarges in praise of Italy, 181—guilty of adulation, 181—his death noticed, 197—censures others for credulity, 376—inveighs against falsehood, 381—proofs of his own credulity, 405, 406—exclaims against luxury, ii. 55—a probable lapse of memory by, 80—his gloomy views of human life, 118, 119—his credulity, 121—possible error by, 127—his credulity, 132—his visit to Africa alluded to, 138—repines at the frail tenure of life, 141—his metaphorical style, 142—his superstition, 151, 152, 155—his opinion on the final conflagration of the world, 156—his hatred of war, 166—his desponding views on human happiness, 187—repines at the frailty of, 207—thinks a short life desirable, 207—considers sudden death a blessing, 213—his singular notion as to a happy death, 216—denies the immortality of the soul, 218—censures the credulity of the Greeks, 283, 284—a mistake made by, 318—his work on the use of the javelin, 320—exclaims against luxury, 438, 439—errors committed by, 488; iii. 104—exclaims against extravagance in perfumes, 137—a mistake made by, 155—inveighs against luxury, 167, 168—his ignorance of vegetable physiology, 197—errors committed by, 203, 205—exclaims against avarice and disregard of knowledge, 216, 217—against drunkenness, 270–274—refers to his visit to the Chauci, 339—a mistake probably committed by, 352—errors committed by, 359, 365, 374—a mistake probably made by, 387—errors committed by, 390, 392—error in transcribing, 441—takes a more cheerful view of things, iv. 3—commends old times, 8, 9—misquotes Columella, 27—error committed by, and his probably imperfect knowledge of Greek, 56, 57—his ambiguous language, 99—accidental omission by, 114—contemplates a work, probably, which he did not write, 150—inveighs against luxury, 150, 151—against gluttony, 152—mistakes made by, 163, 179, 180—contradicts himself, 206, 207—mistakes probably made by, 216, 266—two errors committed by, 279—contradicts himself, 321—mistake made by, 323—errors probably committed by, 334, 338—a lapse of memory by, 361—exclaims against profligacy, 390—against luxury and effeminacy, 395—against the derision of his enemies, 395—mistakes probably made by, 397, 399, 406—error committed by, 410—mistakes probably made by, 413, 422, 460—errors committed by, 464, 492—mistake probably made by, 495—his singular notion as to peaches, 508—error probably committed by, 508—his credulity, 520—commends the ancient manners, v. 3—errors probably committed by, 3, 4, 23—instances of his credulity, 64–67—repines at the general indifference to knowledge, 77, 78—refuses to credit some marvels 82—inveighs against magic, 87—a possible lapse of memory by, 100—mistake made by, 104—mistake probably made by,

106 — absurd error committed by, 111—singular mistake made by, 131—mistake possibly made by, 137—inveighs against magic, 159, 160—against gluttony, 169 — admires the research of the ancients, 218, 219—his belief in first causes, 219—error committed by, 236—inveighs against magic, 237—error committed by, 240—error probably committed by, 273—his great but unsuspecting credulity, 275—his horror of cruelty, 276, 278 — approves of suicide, 278—inveighs against magicians, 307 — his rare attempts at wit, 318 — inveighs against magic, 355 — exclaims against immorality, 378 — inveighs against the Greeks, 381 —against magic, 395, 400, 427 — mistake probably made by, 509—his credulity, vi. 2, 3—effusion of wit, 21 — mistake made by, 25—exclaims against avarice, 68, 69 — against obscenity, 70 — against the use of gold, 71 — against vast retinues of slaves, 81—mistake made by, 116—effusion of wit, 129—laments the downfall of Roman morals, 136, 137, 138 — his credulity, 205 — mistake made by, 245—commends the simplicity of ancient times, 271 — exclaims against luxury, 306 — commends the ancient simplicity, 349—exclaims against the depravity of taste, 351, 352—inveighs against luxury, 391, 392—against the falsehoods of magic, 405 —instances of his credulity, 407, 408 — mistake made by, 422—exclaims against the practices of magic, 434, 450.
"Pliny's graft," iii. 478.
Plistolochia, iv. 284; v. 116, 117.
Plistonicus, iv. 302.
Plocamus, Annius, ii. 53.
Plotius, L., betrayed by his perfumes, iii. 169.
Plough, first use of, ii. 226, 227—described, iv. 62.
Ploughing, iv. 62–66—seasons for, iii. 359.
Plover, ii. 527.
Plum, iii. 294, 295, 296; iv. 507, 508; v. 236—of Egypt, iii. 184.
Plumbago (plant), v. 141, 142.
Plutarch quoted, i. 79, 157, 302; iv. 407.
Pluto, i. 219.
Pnigitis, vi. 299.
Po, i. 186, 243.
Podium, vi. 402.
Poetry, origin of, ii. 231.
Poison, animals that live on, ii. 548; iii. 98—of serpents, iii. 57, 58—taken internally, 323—remedies for, v. 130, 332, 333, 334, 407, 408; vi. 19—in rings, vi. 80.
Poisonous, fungi, iv. 430—honey, iv. 431, 432.
Polecat, ii. 310
Polemonia, v. 102, 103, 127.
Polenta, iv. 28, 29, 442.
Poles of the magnet, vi. 356, 357.
Poles, or stakes, iii. 494, 495.
Poley, iv. 325, 326, 356, 372, 373.
Polias, vi. 460.
Polium, iv. 325, 326, 356, 372, 373.
Pollio, Asinius, i. 310; ii. 177, 239; vi. 318.
Pollio, Carvilius, vi. 134.
Pollio, Nævius, the giant, ii. 156.
Pollio, Romilius, his old age, iv. 437, 438.
Pollio, Vedius, his cruelty, ii. 410.
Polyacanthos, iv. 353.
Polyanthemum, iv. 353.
Polybius, i. 370—the voyage of, 378—his history quoted, 169.
Polycles, vi. 169, 170, 183, 319.
Polycletus, vi. 152, 168, 171, 172.
Polycnemon, v. 209.
Polycrates, vi. 81, 82, 386, 387.
Polycritus, iii. 157.
Polydorus, i. 305.
Polygala, v. 262.
Polygnotus, vi. 141, 185, 241, 249.
Polygonatos, iv. 405.
Polygonodes. v. 57.
Polygonos, v. 259, 260.
Polyidus, vi. 188.
Polymita, ii. 338.
Polypi, ii. 407, 408, 416–421; vi. 36, 50—sailing, ii. 419 —their hatred of cunila, 548.
Polypodion, v. 175, 176, 243.
Polypus of the nose, v. 176.
Polythrix, v. 132; vi. 460.
Polytrichos, iv. 415, 416, 417.
Polyzonos, vi. 460.
Pomegranate, iii. 200, 201—remedies derived from, iv. 498–502.
Pomes described, iii. 293, 294.
Pometia, i. 204; ii. 154.
Pompeii, i. 82, 197; iii. 228 —wines of, iii. 244.
Pompeiopolis, ii. 5.
Pompeius, Cnelus, i. 161.
Pompeius Magnus, i. 164, 414, 424; ii. 85; v. 78, 79; vi. 390, 391—his theatre, ii. 136 — resemblance to him, 147—his conquests, 167.
Pompeius, Sextus, ii. 213, 391.
Pompholyx, vi. 202. 203.
Pompilos, ii. 388, 419.
Pomponianus, Scipio, vi. 225.
Pomponius, Sextus, iv. 440.
Pomptine Marshes, i. 194.
Pontic mouse, ii. 550.
Pontica, vi. 455.
Pontus, animals of, iii. 69. *Also, see* "Euxine."
Poplar, iii. 154, 376; v. 21, 22—used for training the vine, iii. 218.
Poppæa, v. 340; vi. 132, 403 —bathes in asses' milk, iii. 84 — the funeral of, 137.
Poppy, iv. 196, 275–279—when to sow, 81—used for linen, 138.
Porcelain, vi. 392.
Porcupine, ii. 305.
Porphyrio, ii. 530, 537.
Porphyrites, vi. 328.
Porpoise, ii. 377.
Porrigo, remedies for, iv. 227; v. 409.
Porsena, King, i. 84; vi. 160, 206 — his Labyrinth, vi. 342.
Port Mahon, i. 212.
Portico of Octavia, i 164.
Porto Fino, i. 185.
Portents, v. 280, 281, 282. *Also, see* "Magic," "Omens," and "Prodigies."
Portraits, vi. 224–228 — waxen, iv. 346.
Porus, ii. 48.
Posca, iii. 266; iv. 219.

Posia, iii. 282, 283.
Posias, vi. 280, 281.
Posideum, i. 466.
Posidonius (artist), vi. 139, 188.
Posidonius (philosopher), i. 149.
Posilippo, i. 214.
Posis, vi. 285.
Potamaugis, v. 65.
Potamogiton, v. 172.
Poterion, v. 128, 129, 262.
Pothos, iv. 338.
Potidæa, i. 300.
Potter's wheel, ii. 226.
Pottery, invention of the art of, ii. 225—works in, vi. 246, 257.
Poultices, iv. 447.
Poultry, the art of cramming, ii. 531—law as to, 531 — remedies derived from, v. 399.
Pozzuolane, iii. 420; vi. 289, 373.
Pozzuolo, i. 196.
Præcordia, iii. 70.
"Prælegare," meaning of the word, vi. 87.
Prænestæ, i. 201.
Prætetianum, iii. 239.
Prætexta, ii. 337, 338, 411, 447, 448; vi. 72.
Prætutia, i. 235—wines of, iii. 242, 246.
Prammian wine, ii. 237.
Prase, vi. 429.
Prasii, ii. 52.
Prasion (plant), iv. 268, 290, 291, 292.
Prasion (stone), vi. 429.
Prasoïdes, vi. 427.
Prason, iii. 210.
"Prata," derivation of the word, iv. 12.
Praxagoras, iv. 301.
Praxiteles, ii. 185; vi. 169, 177, 178, 272, 311, 312, 313.
Precepts most useful in life, ii. 178.
Precious stones, first use of, vi. 386—engraving on, 389, 390—defects in, vi. 411—that suddenly make their appearance, 461 — artificial, 462, 463—forms of, 462—mode of testing, 463.
Precocity, instances of human, ii. 158—sign of an early death, 209—in trees, iii. 389.
Pregnancy, ii. 141.
Prester, iv. 280, 474; vi. 20.
"Prevarication," meaning of the word, iv. 64.
Priapponesus, i. 485.
Priapus, i. 326, 485, 489.
Prices, of trees, iii. 438, 439 —of drugs, vi. 143, 144—immoderate, of statues, 163, 164.
Priene, i, 467.
Primary colours, iv. 326.
Primipilus, iv. 394.
Pristæ, vi. 173.
Pristis, ii. 359.
Privernian wine, iii. 241.
Privet, iii. 372; v. 32.
Prochyta, i. 214.
Procilius, ii. 354.
Proconnesus, i. 496; ii. 144.
Procreation at will, v. 67.
Proculeius, C., ii. 196; vi. 376.
Prodigies, i. 115, 116; v. 280, 281, 282—celestial, i. 596 —connected with trees, iii. 526, 527 — connected with the health, vi. 384.
Production of plants, the natural order of, iii. 379, 380.
Products of trees, iii. 119.
Prœtus, the daughters of, v. 96.
Progeny, numerous, ii. 149, 150.
Progne, i 307.
Prognostics, as to length of life, iii. 96—derived from the sun, iv. 117, 118, 119 —from the moon, 119, 120 —from the stars, 120, 121 —from thunder, 121—from clouds, 121 — from mists, 122—from water, 122, 123 — from tempests, 123 — from aquatic animals and birds, 123, 124—from quadrupeds, 124, 125 — from plants, 125 — from food, 125.
Promenade, arched, vi. 339.
Prometheus, ii. 226; vi. 71, 386.
Propagation of plants, iii. 461–467.
Propolis, iii. 6, 7; iv. 346, 434; v. 22.
Propontis, islands of, i. 496.
Propylæum, vi. 318.
Prose, first writer in, ii. 231.
Proserpin, i. 219.
Proserpinaca, v. 264.
Prostypa, vi. 284.
Protesilaüs, i. 297, 308; iii. 431.
Protogenes, vi. 188, 257, 258, 259, 264–267.
Protropum, iii. 246, 250.
Proverbs, i. 8, 10, 229; vi. 258, 262.
Pruning, iii. 509–515 — errors in, 531.
Prusa, i. 493, 494.
Prusias, i. 493; ii. 154.
Psetta, ii. 396.
Pseudoanchusa, iv. 410.
Pseudobunion, v. 61.
Pseudodictamnon, v. 115, 116, 172.
Pseudonard, iii. 120.
Psimithium, vi. 219, 220.
Psittacus, ii. 522, 523.
Psoricon, vi. 199.
Psychotrophon, v. 111, 112.
Psylli, i. 393; ii. 125, 289; iii. 30; v. 129.
Psythium, iii. 248.
Pteris, v. 245, 246.
Pteron, vi. 317.
Pterophoros, i. 336.
Pterygia, v. 510.
Ptisan, iv. 28, 29, 446.
Ptolemæus, i. 440; iii. 157; vi. 260.
Ptolemais, i. 396, 434; ii. 94.
Ptyas, v. 497.
Publicani, vi. 84, 85.
Publicius, ii. 147.
Public-houses, ii. 459.
Publius Syrus, ii. 344.
Puce, ii. 450.
Pucinum, wine of, iii. 239.
Pulcher, Claudius, vi. 231.
Pulegium, iv. 259, 260.
Pulmentarium, iii. 303; iv. 32.
Pulmo marinus, ii. 458; vi. 46.
Puls, iv. 32, 443.
Pulsation, v. 372.
Pumpkins, iv. 157.
Pumice, vi. 365, 366, 367.
Punic apple, iii. 200, 201; iv. 498–502.
Punjaub, ii. 16.
Pupils of the eyes, double, ii. 127, 128 — the nature of, iii. 52, 53.
Purgatives, iv. 518, 519.
Purification, vi. 292—of the city of Rome, ii. 492, 493.
Purple, i. 435; ii. 442–450—vestments, 442, 443—when first used at Rome, 447.
Purples, ii. 441–445.
Purpurariæ, ii. 106.
Purpurissum, vi. 242.
Purslain, iii. 204; iv. 280, 281, 282.
Purulent eruptions, remedies for, v. 357.
Puteal, iii. 310.
Puteoli, i. 196, 214.
Pycnocomon, v. 175.

Pydna, i. 298, 300.
Pygargus, ii. 347, 482, 483.
Pygmies, i. 306, 464; ii. 101, 132.
Pylos, i. 282.
Pyracantha, v. 46.
Pyrallis, ii. 551; iii. 42.
Pyramids of Egypt, i. 418; vi. 335–338.
Pyrausta, iii. 42.
Pyren, vi. 459.
Pyrene, i. 157.
Pyrenees, i. 166, 360, 361, 363.
Pyrgoteles, ii. 184; vi. 389.
Pyrites, vi. 359.
Pyritis, vi. 460.
Pyromachus, vi. 170, 183, 184.
Pyropus, vi. 189.
Pyrosachne, iii. 201.
Pyrrhic dance, ii. 231.
Pyrrho, ii. 160.
Pyrrhocorax, ii. 529.
Pyrrhopecilon, vi. 331.
Pyrrhus, King, i. 226; ii. 128; iii. 70; v. 288—his jewel, vi. 387, 388.
Pythagoras (artist), vi. 168, 174.
Pythagoras, the philosopher, i. 29, 52, 486; vi. 159—his opinion on beans, iv. 44—his work on plants, v. 62, 63—his visit to the East, 82.
Pythagorean philosophers, i. 148, 149.
Pythagorean philosophy, the, iii. 192.
Pytheas (artist), vi. 140.
Pytheas, the geographer, i. 150.
Pythius, vi. 130.
Pythonoscome, ii. 502.
Pyxacanthus, Chironian, iii. 114.

Q.

Quadrupeds, prognostics derived from, iv. 124, 125.
Quails, ii. 503, 504—subject to epilepsy, 505—not eaten, 505.
Quartz, vi. 371, 372, 453.
Queen-bee, iii. 10, 17.
Quercus, iii. 346.
Quicklime, vi. 373.
Quicksets, iii. 499, 502.
Quicksilver, swallowing of, iv. 220—description of, vi. 113, 114.
Quinces, i. 488; iii. 392, 393, 398 — remedies derived from, iv. 486, 497.
Quincunx, iii. 468.
Quindecimviri, ii. 191; v. 280.
Quinquatrix, iv. 159; vi. 280.
Quinquefolium, v. 122, 123.
Quintii, family of the, vi. 78.
Quinzy, remedies for, v. 161, 434, 435, 436.
Quorra, i. 395.

R.

Rabbits, i. 212; ii. 348, 349—of Bætica have a double liver, iii. 70.
Rabelais quoted, ii. 304, 414; v. 427.
Rachias, ii. 53.
Radicula, iv. 148, 149; v. 39, 40.
Radishes, iv. 161–165, 215–218.
Ragwort, v. 146.
Raia, ii. 411.
Rain, place where there is *none*, i. 123—its influence upon plants, iii. 442, 443—signs of, iv. 124.
Rainbow, i. 89, 90—its influence, iii. 451.
Rain-water, v. 483.
Raisin wine, iii. 249.
Raisins of the sun, iii. 249; iv. 463, 464.
Ram, ii. 332—in love with a woman, ii. 498.
Rameses, i. 418.
Rampions, iv. 507; v. 72.
Ranunculus, iv. 248, 379; v. 148, 149, 150.
Rape, iv. 47, 48, 161, 213, 214.
Raphanos agria, v. 180, 181.
Rascasse, vi. 30.
Raspberry, v. 50.
Ratumenna, the horses of, ii. 320.
Raurici, i. 355.
Raven, ii. 491, 492—speaking, 524, 525—used for hunting, 525.
Ravenna, i. 241.
Razors, invention of, ii. 237.
Razor-sheath, ii. 547; iii. 50.
Realgar, vi. 220, 240.
Reaping-hook, iv. 92.
Reate, i. 133, 233—asses of, ii. 323.
Receding of the sea, i. 116, 117.
Reclining-chairs, iii. 409.
Red hair, iv. 483; v. 342.
Red ochre. *See* "Ochre."
Red Sea, ii. 66—gulfs of, 91—monsters of, 360—trees of, iii. 117—plants of, 211—marvels of, vi. 5, 6.
Reddle, vi. 363.
Rediculus, the field of, ii. 525.
Red-throat, ii. 511.
Reed-beds, iii. 493.
Reeds, iii. 403–409; v. 35, 36; vi. 58 — gigantic, ii. 129; iii 405—scented, v. 36.
Regal unguent, iii. 166.
Reggio, i. 209, 243.
Regillus, Lake, vi. 86.
Register of the Triumphs, i. 497.
Regret, deaths from, ii. 181.
Regulus, Atilius, iv. 11.
Reindeer, ii. 304.
Relief, vi. 454.
Religious ideas attached to certain parts of the body, iii. 88.
Religious observances, iii. 92.
Remedies derived *from* man, v. 276, 277, 278, 286, 287, 288—from the dead, 292, 293.
Remora, ii. 412, 413, 414; vi. 2, 3.
Rennet, ii. 298; iii. 84.
Repositorium, ii. 379; iv. 125; vi. 132.
Reproduction of *stone*, vi. 358.
Reseda, v. 265, 266.
Resemblance, of children to parents, ii. 145 — strong, instances of, 145–148.
Resin, iii. 361, 362, 363 — cedar, 179—medicinal properties of, v. 15, 16, 17.
Respiration, iii. 67, 97—of insects, ii. 3—of fish, 367, 368.
Reticulated building, vi. 373.
Revolutions of the planets, i. 27–31.
Rex, Q. Marcius, vi. 352.
Rex Sacrorum, iii. 66.
Reynolds, Sir Joshua, quoted, vi. 263.
Rhacoma, v. 265.
Rhagiane, ii. 28.
Rhamnos (plant), v. 50.
Rhamnus (place), i. 290.
Rhamsesis, vi. 331, 332.
Rhætian wines, iii. 242.
Rhenea, i. 348, 349, 350.
Rhegium, i. 208, 209, 216.
Rhine, i. 348, 349, 350.
Rhinoceros, ii. 278; iii. 46, 89, 90.
Rhinolaca, i. 425.
Rhion, i. 275.
Rhizophora mangle, iii. 117.

Rhodanus, i. 175.
Rhodes, described, i. 483—wines of, iii. 248—Colossus of, vi. 165.
Rhodinum, iii. 160, 289.
Rhoditis, vi. 461.
Rhododendron, iii. 373, 374; v. 37.
Rhodope, i. 272, 299, 303.
Rhodopis, vi. 338.
Rhodussæ, i. 496.
Rhœas, iv. 278, 379.
Rhœcus, vi. 283, 342.
Rhœteum, i. 477.
Rhœtes, iii. 257.
Rhombus, ii 389, 396, 452.
Rhone, i. 175.
Rhopalon, v. 107.
Rhubarb, v. 265
Rhus, v. 38—erythros, 38.
Rhysaddir, i. 385.
Ribes, iii. 74.
Rice, iv. 28.
Riches, immense, instances of, vi. 93, 94, 129, 130, 131.
Ricinus (plant), iii. 287.
Ridicule, how expressed, iii. 55.
Rimini, i. 241.
Ringdove, ii. 508, 518.
Rings, curtain, iii. 183—gold, vi. 71-75—right of wearing, 76—how worn, 80.
Riphæan Mountains, i. 336; ii. 23.
Risardir, i. 379.
River-crab, vi. 23.
River-frog, vi. 21.
River-snail, vi. 24.
Rivers, wonders of, i. 131-138.
Roach, ii. 391.
Rob, iii. 249.
Robigalia, iv. 99.
Robur, excrescences of the, v. 6.
Rocket (plant), iv. 250, 251.
Rocks split with vinegar, iv. 480.
Rodarum, v. 69, 70.
Rome, described, i. 202—sway of, v. 218—tutelary deity of, 282—siege of, by the Gauls, vi. 75, 76—painters of, 229, 230, 231—paintings exhibited at, 231-234—marvellous buildings at, 345-355.
Romulus, i. 202, 204; iv. 3; vi. 158—his inspection of wines, iii. 252—and Remus, suckled by a wolf, iii. 310.
Roots, of trees, iii. 393—loosening of, 390, 394—of plants, 491, 492; iv. 170—plants without, 142.
Ropes, materials for, iv. 141.
Roscius, the actor, ii. 185.
Rosemary, iv. 203; v. 40.
Roses, iv. 310-314, 364, 365, 366—of Præstum, i. 208—oil of, iii. 289.
Rostra, ii. 238; iii. 342; vi. 156.
Rostrum, iii. 342.
Royal disease, why jaundice was so called, iv. 438.
Rubellio, vi. 57.
Rubellite, vi. 405.
Rubeta, ii. 288; iii. 98; iv. 102; v. 128, 303; vi. 22.
Rubia, iv. 148; v. 38, 39.
Rubico, i. 241.
"Rubric," the word, vi. 123.
Rubrica, vi. 120, 236, 237.
Rubrius, the actor, ii. 147.
Ruby, vi. 420-425.
Rue, iv. 191, 192, 252-256.
Rufus, Julius, v. 154.
Rufus, Messala, ii. 239.
Rufus, P. Cornelius, ii. 206.
Rufus, Suillius, ii. 140.
Rufus, Vibius, iii. 276.
Rumex, iii. 7; iv. 287.
Ruminalis, iii. 310.
Rumination, ii. 549, 550.
Rumpotinus, iii. 219; v. 69.
Runners have the spleen cauterized, iii. 73.
Rupicapra, ii. 346, 347.
Ruptures, remedies for, v. 205.
Ruscus, iv. 521—hypophyllum, 518.
Rush, iii. 403, 411; iv. 361—sweet-scented, iii. 144; iv. 364.
Rust, vi. 209, 210, 211.
Rut, earth from a, v. 429.
Rutubis, i. 379.
Rutupæ, oysters of, vi. 27.
Rye, iv. 31, 52.

S.

Saave, i. 263.
Saba, iii. 124.
Sabæi, ii. 87; iii. 124.
Sabbath, v. 480.
Sabelli, i. 232.
Sabini, i. 191, 234, 235.
Sabinus Fabianus, iv. 126.
Sabinus, Masurius, ii. 239.
Sabinus, Titius, ii. 313.
Sabis, the divinity, iii. 128.
Sabota, iii. 128.
Sabrata, i. 399.
Sacæ, ii. 33, 34.
Sacal, vi. 399.
Saccharon, iii. 114.
Sachets, iii. 166.
Sacopenium, iv. 195, 196, 274, 275.
Sacrament, the Holy, a possible reference to, v. 427.
Sacred rites, wines not used in, iii. 263.
Sæpia (fish), ii. 359, 389, 416, 417; vi. 31—ink of the, 58.
Sæpia (colour), vi. 241.
Sætabis, i. 170.
Saffron, iv. 319, 320, 321, 370.
Saffron-water, iv. 321.
Sagapenon, iv. 195, 196, 274, 275.
Sagaris, ii. 2.
Sagda, vi. 456.
Sage, iv. 449, 450; v. 164.
Sagmen, iv. 291.
Saguntum, i. 166—Temple at, iii. 424.
Sailcloth, iv. 132.
Sails, invention of, ii. 235.
Saïs, i. 408, 421.
Sala, i. 377.
Salads, iv. 153.
Salamander, ii. 545, 546—eaten by the wild boar, iii. 98—poisonous, 98—remedies from, v. 397.
Salamis, i. 315.
Salarian Way, v. 506.
Salerno, School of health at, i. 207; iv. 167, 214, 223.
Salernum, i. 207.
Salicastrum, iv. 465, 466.
Salii, iv. 309.
Salinæ, iv. 325, 372.
Salivation, v. 254.
Sallee, i. 377.
Sallustius Dionysius, v. 523.
Salmon, ii. 404.
Salona, i. 259.
Salonian, ii. 150.
Salpa, ii. 404.
Salpe, v. 349.
Salsugo, v. 506, 507.
Salt, why the sea is, i. 129, 130—towers of, ii. 84—good for cattle, 549—water, plants benefited by, iv. 201—an account of, v. 500-506—nature of, 509-512—"Salt," figurative use of the word, 505, 506.
Salted cake, iv. 4.
Salted fish, vi. 20, 21.
Salted wines, iii. 247, 248.
Saltpans, v. 503.
Saltpetre, v. 512.
Salvia, iv. 449, 450; v. 164.
Salvitto, ii. 147; vi. 225.
Salvius, ii. 161.
Samaria described, i. 425, 427.
Sammonium, i. 313.

Samnites, i. 232—their arms, ii. 160.
Samolus, v. 42.
Samos, i. 485—earth of, vi. 298—stone of, v. 365.
Samosata, i. 443.
Samothrace, i. 324—rings of, vi. 79.
Samothracia (stone), vi. 456.
Sampsuchinum, iii. 163.
Sampsuchum, iv. 334, 335, 378, 379.
Sancus, the divinity, ii. 336.
Sand, used in bread, iv. 37—various kinds of, v. 490, 499—used for cutting marble, vi. 326—for making glass, 379, 381.
Sandalides, iii. 175.
Sandaliotis, i. 216.
Sandaraca, vi. 220, 239, 240.
Sandaraca (of bees), iii. 7.
Sandaresos, vi. 424.
Sandastros, vi. 423, 424.
Sandix, v. 39; vi. 240.
Sangarius, ii. 3.
Sangenon, vi. 417, 436.
Sangualis, ii. 487.
Sanguiculus, v. 348.
Sanguinaria, v. 259, 260.
Sanguisuga, ii. 259.
Sauni Heniochi, ii. 10.
Santarem, vi. 216.
Santerna, vi. 110.
Saone, i. 175.
Sap of trees, iii. 379, 383; v. 164.
Sapa, iii. 248, 264, 269, 270; iv. 481, 482—lees of, 484.
Sapenos, vi. 433.
Sapphire, vi. 420, 427, 434, 435, 437.
Sapphiros, vi. 432.
Sappho, i. 274; iv. 398.
Sappinia, iii. 292.
Sarsceni, i. 422.
Saracens, ii. 88.
Sarcitis, vi. 456.
Sarcocolla, iii. 185; v. 52.
Sarcophagus, i. 124; vi. 357.
Sarda, vi. 418, 420, 425, 426, 443.
Sardanapalus, i. 447.
Sardes, i. 465.
Sardines, v. 264.
Sardinia, i. 215—earth of, vi. 300.
Sardonic laugh, ii. 208.
Sardonyx, vi. 387, 417, 418.
Sarepta, i. 435.
Saripha, iii. 207.
Sarmatæ, i. 329—their horses, ii. 329.
Sarmati, i. 344.
Sarmatia described, i. 329.
Saronic Gulf, i. 278, 285.
Sarpedon, his letter, iii. 198.
Sarsaparilla plant, iii. 402.
Sartage, iii. 362.
Saserniæ, the, ii. 554.
Sasonis, i. 267.
Satarchæ, i. 333.
Satrapies, ii. 50, 51, 57.
Saturnia, i. 204.
Saturninus, L. Volusius, ii. 150; iii. 79.
Satyrion, v. 190, 191, 192.
Satyrs, i. 406; ii. 132, 348, 549.
Satyrus, vi. 467.
Sauritis, vi. 456.
Sauromatæ, ii. 13.
Saurus (artist), vi. 322.
Saurus (fish), vi. 38.
Savin, v. 41.
Savus, i. 263.
Sawfish, ii. 359.
Saxifragum, iv. 415, 416, 417.
Saxum, vi. 300.
Scævola, Q. Mutius, iii. 275.
Scalabis, i. 365.
Scaldis, i. 353.
Scales, ii. 405—fish without, v. 508.
Scales of iron, vi. 211, 212.
Scallions, iv. 171, 173.
Scallops, ii. 417; vi. 43, 44.
Scamander, i. 476.
Scammony, v. 176, 177.
Scandia, i. 351.
Scandinavia, i. 343—the island of, ii. 263
Scandix, iv. 349, 423.
Scapus, iii. 189.
Scarabæus, v. 416, 454—nasicornis, iii. 34.
Scaritis, vi. 459.
Scars, obliteration of, v. 209, 210, 260.
Scarus, ii. 400, 401.
Scaurus, M., vi. 163, 306, 307, 349, 350, 390.
Scenitæ, i. 422, 445; ii. 74, 83, 88.
Scepsis, i. 474
Scheda, iii. 190.
Schillerspath, vi. 412.
Schirri, ii. 151.
Schistos, vi. 363.
Schœni, v. 64.
Schœri, vi. 453.
Sciadeus, vi. 64.
Sciæna, ii. 393.
Sciapodæ, ii. 130.
Sciatica, v. 441.
Scilly Islands, i. 367; vi. 212.
Scincus, ii. 288; v. 318.
Scinde, ii. 51.
Scio, i. 486.
Scipio Africanus, the Elder, ii. 143; iii. 235.
Scipio Africanus, the Younger, ii. 525; vi. 132—his funeral mentioned, ii. 194—the first who shaved constantly, 237.
Scipio, L., Asiaticus, i. 4.
Scipio, L., his memory, ii. 164.
Scipio, Metellus, ii. 355.
Scipios, nickname given to the, ii. 147.
Scironian Rocks, i. 289.
Scolex of copper, vi. 197, 198.
Scolopendra, ii. 452; iii. 35; v. 417.
Scolymos, iv. 299, 353, 354, 425, 426.
Scomber, ii. 386; v. 508.
Scopa regia, iv. 318; v. 95.
Scopas, vi. 313, 314, 316, 317, 324, 343.
Scops, ii. 530, 531.
Scordotis, v. 102.
Scoria of copper, vi. 194.
Scoria of lead, vi. 218.
Scorpæna, ii. 464; vi. 64.
Scorpio (plant), iv. 350, 352, 405; v. 128, 270.
Scorpion, iv. 381, 414; v. 222, 284—which injures the natives only, ii. 354—an account of, iii. 29, 30, 31—winged, 30—remedies for the sting of, v. 330, 331.
Scorpion-fly, iii. 30.
Scorpion-grass, iv. 350, 352, 405; v. 110.
Scorpitis, vi. 459.
Scorpiuron, iv. 413, 414, 415.
Screech-owl, ii. 492—with teats, iii. 82.
Scripture quoted, i. 156, 201, 304, 380, 418, 422, 423, 425, 426, 428, 429, 430, 431, 432, 433, 434, 435, 436, 440, 442, 452, 456, 457, 460, 474, 492; ii. 75, 90; iv. 122, 397; v. 425, 509; vi. 30, 79, 115, 259.
Scrofa, C. Tremellius, iii. 99.
Scrofula, why so called, ii. 343—remedies for, v. 161, 162, 342, 434, 435, 436; vi. 37.
Sculptors, celebrated, vi. 308–323.
Sculptures at Rome, vi. 315, 316.
Scumbling, vi. 263, 265.
Scutari, i. 495.
Scutcheons, grafting by, iii. 483, 484, 485.
Scybelites, iii. 248.
Scylacium, i. 222.
Scylla, i. 209, 216, 217.
Scyllæum, i. 209, 284.
Scyllis, vi. 278, 350.

Scyrite, ii. 131.
Scyros, i. 319, 321.
Scythe, iv. 91, 92.
Scythia, described, i. 329, 330; ii. 36—the peoples and tribes of, 34, 122; v. 110, 111—the animals of, ii. 262.
Scythian Ocean, ii. 23.
Scythians, their cavalry, ii. 318—poison their arrows, iii. 97, 98.
Scythice, v. 110, 111, 163.
Scythopolis, i. 432.
Sea, the, i. 97, 98, 128, 129, 130—receding of, 116, 117—ebb and flow of, 124–128—largest animals in, ii. 358, 361—monsters of, 359, 460—animals of, 459, 460—a list of, vi. 59–65—water of, mixed with wines, iii. 247—remedies derived from, v. 496, 497, 498—voyages by, advantages of, 496, 497.
Sea-blackbird, ii. 389.
Sea-cabbage, iv 241; vi. 39.
Sea-calf, ii. 298, 369, 380, 381; vi. 24.
Sea-dogs, or dogfish, ii. 377, 433, 456, 457, 458.
Sea-dragon, ii. 416.
Sea-eagle, great, ii. 482, 483.
Sea-elephant, ii. 364.
Sea-fennel, v. 141.
Sea-fish, when first eaten at Rome, vi. 10.
Sea-fleas, ii. 459.
Sea-fox, ii. 452.
Sea-frog, ii. 412, 452; vi. 21.
Sea-hare, iii. 59, 460; v. 332; vi. 4, 5.
Sea-holly, iv. 397.
Sea-kite, ii. 415.
Sea-lice, ii. 459; vi. 33.
Sea-lizard, vi. 33.
Sea-locust, ii. 423, 424.
Sea-lungs, ii. 458; vi. 46.
Sea-men, ii. 363; vi. 60.
Sea-mew, ii. 513.
Sea-mice, ii. 406, 466; iii. 59; vi. 29.
Sea-monster to which Andromeda was exposed, ii. 364.
Sea-needle, ii. 466.
Sea-nettle, ii. 453, 454; v. 187.
Sea-ram, ii. 364, 452.
Sea-raven, vi. 61.
Sea-scallop, ii. 248, 249.
Sea-scorpion, vi. 53.
Sea-serpents, ii. 302.
Sea-snails, preserves for, ii. 470.
Sea-sparrow, ii. 407.
Sea-spider, ii. 416, 460.
Sea-stars, ii. 458, 474; vi. 19.
Sea-swallow, ii. 415.
Sea-thrush, ii. 389.
Sea-trees, ii. 362; vi. 60.
Sea-urchin, ii. 427; iii. 58; vi. 25.
Sea-weasel, vi. 12.
Sea-weed, v. 193, 232; vi. 28.
Sea-wheels, ii. 363, 467.
Sea-wolves, ii. 488.
Sea-wort, iv. 21; vi. 39.
Seals (animals), ii. 369; vi. 74, 79.
Seals (for letters), vi. 389, 390, 431.
Sealskin, vi. 46.
Seasons, the, i. 66, 67, 68—for sowing, iv. 72, 73, 74—epochs of, 78, 79—signs of, 93, 94.
Sebaste, i. 427.
Sebastia, ii. 6.
Sebennys, wine of, iii. 246.
Sebosus, i. 147.
Secale, iv. 52.
Secundilla, the giantess, ii. 157.
Secundus, Pomponius, ii. 238.
Securidaca, v. 262.
Sedigitæ, iii. 86.
Sedition caused by a raven speaking, ii. 524.
Sedum, iv. 58; v. 144.
Seed, iii. 460, 461—quality of, iv. 69, 70—at what age unproductive, 69, 70.
Seed-plots, iii. 464–467.
Segesta, iv. 4.
Segobriga, i. 171.
Segontia, i. 172.
Seia, iv. 4; vi. 370.
Σελάχη, ii. 412.
Selago, v. 41, 42.
Selenite, vi. 368, 369.
Selenitis, vi. 456.
Selenomancy, vi. 449.
Seleucia, i. 438, 440; ii. 73.
Seleucides, ii. 507.
Selgicum, iii. 290; iv. 494.
Selinus, i. 218, 220, 448.
Selinusian earth, vi. 299.
Sellæ, i. 272.
Semiramis, ii. 6, 33; vi. 93—in love with a horse, ii. 318.
Semnion, v. 65.
Semper mustum, iii. 249.
Seneca, L., Annæus, ii. 114; iii. 235—his works quoted, i. 60, 61, 64, 70, 73, 77, 81, 83, 85, 92, 97, 101, 113, 114, 117, 119, 121, 128, 132, 135, 136, 413, 414; ii. 40, 76.
Senogallia, i. 238.
Senones, i. 243, 356.
Senses, ii. 546, 547.
Sensitive plant, v. 67.
Sensitiveness of water animals, ii. 451.
Sentiments, expression of the, iii. 95.
Sentius, C., iii. 255.
Sepiussa, i. 485.
Sepiasia, iii. 357; vi. 143, 195.
Seps, iv. 516; v. 407.
Septa, iii. 419; vi. 316.
Septentrional Ocean, i. 341; ii. 20.
Septimuleius, vi. 91.
Septusgint, i. 479.
Sepulchres adorned with chaplets, iv. 308.
Sequani, i. 355.
Serse, ii. 54, 55.
Serapias, v. 189, 190.
Serapio, vi. 269.
Serapion, the philosopher, i. 149.
Serenus, Annæus, poisoned, iv. 430.
Seres, ii. 35, 132; iii. 101, 107, 117; vi. 208, 465, 466.
Sergius, M., his valour, ii. 172.
Sergius, Paulus, i. 148.
Serica, ii. 36.
Serichatum, iii. 142.
Seriphium, v. 235; vi. 41.
Seriphus, i. 318.
Seris, iv. 235.
Serpent-charmers, ii. 125; iii. 58.
Serpentine, vi. 367.
Serpents, i. 92, 194, 212—their power of fascination, ii. 261—of immense size, 261, 262—their combats with stags, 301, 302—that injure strangers only, 253, 254—oviparous, 540—produced from human marrow, 545—how driven away, 548—suck eggs, 548, 549—liking for wine, 549—attacked by the spider, 552—affection shown by, 552—teeth of, iii. 57, 58—poison of, 57, 58—with feet, 90—eaten by swine, 97—a shrub full of, 115—their antipathy to certain trees, 365, 366—remedies for injuries inflicted by, v. 118, 119, 328, 329, 330, 392, 396, 397; vi. 20.
Serpents' eggs (adder gems), v. 388, 389, 390.
Serpents' Island, i. 331.

Serrani, family of the, iv. 132.
Serranus, iv. 9.
Serratula, v. 111, 112.
Sertorius, Q., i. 166; ii. 168; iv. 394—and the white hind, ii. 301.
Serum, iii. 84.
Servia, i. 264.
Servility condemned, iii. 217.
Servius on Virgil quoted, i. 194, 410, 455.
Servius Tullius, King, i. 143; vi. 384.
Sesambri, ii. 103.
Sesame, ii. 90; iv. 36, 444.
Sesamoides, iv. 444, 445.
Sesculysses, i. 8.
Seselis, ii. 209.
Sesostris, ii. 92; vi. 94.
Sesothes, vi. 331.
Sestos, i. 308; ii. 486.
Setia, i. 195.
Setine wines, iii. 239; iv. 471.
Sevenfold echo, vi. 345.
Severus, Cassius, v. 288.
Sewers at Rome, vi. 347, 348.
Sex, indications of, before birth, ii 141—changes of, 138—children of one, 149—of issue, how ensured, v. 93, 239—in trees, iii. 359.
Sextiæ, v. 472.
Sextilius, v. 368.
Sexual congress, the, v. 292, 297.
Sexual parts of animals, iii. 91, 92.
Sexual passions, stimulants of the, v. 365, 366. *And see* "Aphrodisiacs."
Shad, vi. 65.
Shadows, when and where there are none, i. 107 108—thrown by trees, iii. 473.
Shaking lands, i. 122.
Shakspeare quoted, ii. 143, 153.
Shame, iii. 80.
Sharks, ii. 456, 457, 458. *And see* "Dog-fish."
Shaving, the practice of, ii. 236, 237.
Sheba, ii. 87.
Sheep, ii. 331—their propagation, 331—covered, 332—colonic, 332—their wool, 333, 334, 335—shapes of, 338, 339.
She-goat, destructive to the olive, iii. 291, 292.
Shell-fish, ii. 458—various kinds of, 428, 429—why honoured at Cnidos, 413, 414—generation of, 463.
Shells of Venus, ii. 429.
Shepherd's dog, ii. 315.
Shields, invention of, ii. 227—with portraits, vi. 227, 228.
Shingles (disease), v. 24, 199.
Shingles (for building), iii. 101, 355.
Ships, invention of, ii. 233, 234—of war, 234, 235, 236—building of, iii. 416—colouring of, vi. 245.
Shiverings, cold, remedies for, v. 449, 450.
Shoes, invention of, ii. 224—mullet-coloured, 402.
Shooting stars, iv. 120.
Shop-paper, iii. 189.
Shortlived trees, iii. 432.
Shortness of life, indications of, iii. 96.
Shoulders, remedies for diseases of, v. 436.
Showers of milk, blood, flesh, iron, wool, and tiles, i. 87, 88.
Shrewmouse, its bite venomous, ii. 353.
Shrubs, wines made from, iii. 260—used for training the vine, 495-517.
Shushan, ii. 62.
Sibyl, i. 474; ii. 179—her books, iii. 193.
Sicelicon, v. 135.
Sicily described, i. 216.
Sickle, iv. 91, 92.
Sicyon, i. 280.
Side, which is the strongest, ii. 158—remedies for pains and affections in the, v. 164, 440, 441.
Sideboards, vi. 132, 135.
Sideration, iii. 520.
Siderite, vi. 407.
Siderites, vi. 407.
Sideritis (plant), v. 94, 95, 162.
Sideritis (a stone), vi. 355, 454, 456, 457.
Sideropœcilos, vi. 456, 457.
Sidon, 435; vi. 380.
Siege, usages at, v. 281, 282.
Sieve, plants that grow in a, v. 69.
Siga, i. 385.
Sigeum, i. 308, 476.
Sight, acuteness of, ii. 162—theory of, iii. 50, 51, 52—mole destitute of, iii, 50—of snails, iii. 50.
Sigilmessa, i. 382.
Signets, vi. 74, 79, 81, 389, 390.
Signia, i. 201.
Signine composition, vi. 289.
Signine wines, iii. 241; iv. 471.
Signum, vi. 167.
Signenza, i. 172.
Sikhs, ii. 47.
Sil, vi. 140, 141.
Silanion, vi. 169, 183.
Silanus, D., iii. 275; iv. 10.
Silanus, M., ii. 149.
Silaüs, v. 186.
Sile, iv. 221.
Siler, v. 31.
Silex, vi. 371, 372.
Sili, v. 71.
Silicia, iv. 51, 52; v. 74, 75.
Siligo, iv. 29, 32, 33, 35, 440.
Siliqua, iii. 181, 368.
Siliquastrum, iv. 267, 268.
Silk, ii. 36; iii. 26, 27, 377; v. 273—or cotton, alluded to, ii. 131—vestments of, iii. 26, 27—chaplets of, iv. 309.
Silkworm, iii. 25, 26—larvæ of, 25—of Cos, 26.
Sillig, his labours on Pliny, iv. 519; v. 272; vi. 1.
Sillybum, iv. 425; v. 168.
"Silo," the name, iii. 56.
Silphium, i. 396, 398; iv. 431, 432.
Silures, i. 351.
Silurus, i. 410; ii. 108, 382, 383.
Silver, used on the stage, vi. 94—how found, 111, 112, 113—scoria of, 116—gilding of, 124—testing of, 125, 126—colouring and enamelling of, 128—various uses of, 137, 138—artists in, 138, 139, 140.
Silver chalk, iii. 454; vi. 301.
Silver lead, vi. 191.
Silver mines, vi. 112.
Silver plate, luxury in, vi. 131, 132—frugality of the ancients in, 132, 133—enormous prices of, 135, 136.
Simia hamadryas, ii. 348.
Simiæ, menstruation of the, ii. 151.
Similago, iv. 34.
Simois, i. 476.
Simon, vi. 187.
Simonides, i. 322; ii. 165, 231.
Simonides, the Younger, ii. 116.
Simus, the writer, iv. 388.

"Simus," the name, iii. 56.
Sindbad, the Sailor, and the story of Aristomenes, iii. 66.
Sindos, ii. 13.
Sinews, remedies for diseases and affections of, v. 202, 203, 358, 457, 458; vi. 50.
Singara, i. 444.
Singing, aided by plates of lead, vi. 216.
Singing of birds, iii. 94—how prevented, vi. 272.
Sinigaglia, i. 238.
"Sinister," meaning of the word, vi. 72.
Sinon, ii. 229.
Sinope, ii. 4.
Sinopis, vi. 235, 236.
Sinuessa, v. 474.
Siphnus, i. 318.
Sipontum, i. 227.
Sipylum, i. 470.
Sirænum, iii. 248.
Sirbonian Lake, i. 425.
Sirbytum, ii. 103.
Sirenes (bees), iii. 17.
Sirens, i. 197; ii. 530.
Siriasis, iv. 414; v. 465, 466, 467.
Sirius, ii. 316; iii. 11.
Sisymbrium, iv. 197, 293.
Sittacene, ii. 78.
Sium, iv. 424, 425; v. 172.
Size, instances of unusual, ii. 155, 156, 157.
Skarpanto, i. 483.
Skate, vi. 33.
Skin, coverings of the, iii. 81.
Skirrets, iv. 166–169, 220.
Sky, colours of the, i. 60, 61—rattling of arms in, 88.
Slabs of marble, vi. 324, 325, 326.
Slave-dealing, ii. 148; iv. 381.
Slavery, introduction of, ii. 227.
Slaves, iii. 373; iv. 9, 381; vi. 79, 81, 129, 130, 302—sold at high prices, ii. 185, 186.
Sleep, of fish, ii. 367—of other animals, 552, 553—the mind retiring into itself in, ii. 553—animals without, iii. 48—provocatives of, v. 467.
Slips, propagation by, iii. 464.
Slugs, v. 409.
Smaragdus, vi. 388, 408, 414.
Smarides, vi. 45.
Smegma, vi. 204.
Smell of juices, iii. 325, 326.
Smilax, the maiden, and the youth Crocus, iii. 402.
Smilax, the plant, iii. 402.
Smilis, vi. 342.
Smintheus, i. 475.
Smoked wines, iv. 473.
Smoke-plant, v. 142.
Smoking, instances of the practice of, iv. 362; v. 55, 164, 356; vi. 220.
Smoothing of paper, iii. 190.
Smyrna, i, 470.
Smyrnium, iv. 203; v. 266, 267.
Smyrus, vi. 64.
Snails, ii. 311—valued as a food, 312—destitute of sight, iii. *50—used as a diet, v. 437, 438—remedies derived from, 463.
Snapdragon, v. 131.
Sneezing, v. 297.
Snow, region of, i. 336—reddened by insects, iii. 42—used for cooling water, v. 486.
Snow-partridge, ii. 529.
Snow-water, v. 483.
Soap, v. 342.
Soapstone, vi. 368, 458.
Soapwort, v. 162.
Social War, vi. 78.
Secondion, vi. 433.
Socrates (artist), vi. 277, 318.
Socrates (philosopher), his sedateness, ii. 159—the wisest of men, 178; vi. 159—how put to death, v. 140.
Soft fish, ii. 416.
Soft stones, vi. 371.
Sogdiani, ii. 33.
Soils, the various kinds of, iii. 446–455—crops adapted to certain, iv. 59, 60.
Solanum, v. 266.
Soldering of metals, vi. 111.
Sole (fish), ii. 388, 396.
"Solecism," origin of the word, i. 448.
Solen, ii. 547; iii. 50; vi. 64.
Soles of the feet, iii. 89—perfumed, 167.
Soli, i. 448.
Solinus quoted, i. 202, 234, 333—a mistake by, ii. 137.
Solipuga, ii. 295; iv. 445; v. 403.
Solis gemma, vi. 456.
Solo, iv. 303.
Solstice, the winter, iv. 82, 83—the summer, 92–97.
Solstitial grapes, iii. 256.
Somphus, iv. 212.
Sonchos, iv. 426, 427; v. 314.
Sonticus morbus, vi. 361.
Sophocles, iv. 387—his burial, ii. 174—his death, 213—his works quoted, iv. 25, 375.
Soracte, i. 121; ii. 128.
Soranus, Valerius, i. 11, 102.
Sorbs, iii. 314; iv. 512.
Soriculata, v. 273.
Sornatius, v. 522.
Sorrel, iv. 287; v. 258.
Sorus, vi. 64.
Sory, vi. 198, 199.
Sosigenes, i. 30, 148; iv. 76.
Sosimenes, iv. 302.
Sostratus, vi. 174, 339.
Sotacus, vi. 385.
Sotades, i. 498.
Sotira, v. 368.
Souchet, iv. 383.
Soul, its immortality denied, ii. 218—in plants, iii. 101.
Sour apples, iv. 497.
Sour-krout, iv. 187, 236.
Southernwood, iv. 334, 377, 378; v. 106, 232.
Sow, womb of the, iii. 75—a great delicacy, 75.
Sow-bread, v. 125, 126.
Sow-thistle, iv. 426, 427.
Sowing, rotation in, iv. 68—seed required for, 71, 72—proper times for, 72, 73, 74—winter, 79, 80.
Spa, v. 476.
Spagas, iii. 265.
Spain described, i. 153, 160—how colonized, 157—its minerals, 173, 174—its high rank among nations, vi. 465.
Spalatro, i. 259.
Spanish broom, v. 28.
Sparganion, v. 122, 123.
Sparrow, ii. 518.
Sparta, i. 283.
Spartacus, iii. 331; vi. 93.
Spartel, i. 374.
Sparus, vi. 457.
Spartopolias, vi. 460.
Spartum, iii. 7, 187; iv. 139–142; v. 28, 29.
Spathe, iii. 155; iv. 495, 496.
Specillum, ii. 215.
Specular iron, vi. 356, 363.
Specular stone, iv. 344; vi. 368, 369.
Spells. *See* "Magic."
Spelt, iv. 19, 24 31, 32.
Sperchius, i. 293.
Sphacos, iv. 449, 450; v. 12.
Sphæromancy, v. 427.
Sphæx, iii. 24.
Sphagnos, iii. 145, 146; v. 12.

Sphere, invention of the, ii. 230.
Sphingia, ii. 95, 100.
Sphingium, ii. 549.
Sphinx, ii. 118, 279; vi. 167, 389—Egyptian, 336, 337.
Sphondyle, v. 271.
Sphragis, vi. 237, 431.
Sphyrene, vi. 66.
Spiders, attack the serpent, ii. 552—an account of, iii. 27—their webs, 27, 28—generation of, 29—remedies derived from, v. 415, 416.
Spignel, iv. 295, 296.
Spikenard, iii. 120.
Spilumene, vi. 177.
Spina regia, iii. 107, 208.
Spinal marrow, iii. 63.
Spinelle ruby, vi. 420.
Spinning, invention of, ii. 224; iv. 136.
Spinther, the actor, ii. 147.
Spinturnix, ii. 493.
Spiræ, vi. 375.
Spissum, iii. 167.
Spitter, iii. 44.
Spitthig of blood, remedies for, v. 343, 344.
Spittle, human, kills serpents, ii. 126—particulars relative to, v. 288, 289, 290—of females, 304.
Splanchnoptes, iv. 407; vi. 183.
Spleen, iii. 73 — animals without, 73 — cauterized in runners, 73—small in certain animals, 73—remedies for diseases and affections of, v. 181, 182, 345, 346, 439, 440; vi. 41, 42.
Spleenwort, v. 228, 229.
Splenion, v. 95, 96.
Spodium, iv. 485, 505; vi. 202, 203—of lead, 218.
Spodos, vi. 202, 203.
Spoleto, i. 240.
Spoletum, i. 240.
Spondylium, iii. 153; v. 12.
Spondylus, vi. 65.
Sponges, ii. 454, 455, 456; v. 519–522.
Spongites, vi. 362.
Spongitis, vi. 457.
Sponsalia, ii. 437.
Spontaneous growth of trees, iii. 394, 395, 396.
Spoonbill, ii. 522.
Sporades, i. 320.
Spotted marble, vi. 325.
Sprains, remedies for, v. 200, 357.
Spring flowers, iv. 236, 337.
Spring-wagtail, ii. 522.
Springs, hot. *See* "Hot springs."
Spurge, iv. 228; v. 177, 179, 180.
Squalls, i. 79, 80.
Squalus, ii. 289, 412.
Squatina, ii. 380, 411, 452.
Squill, iv. 241, 242, 243—vinegar, 241, 242, 480, 481.
Squillace, i. 222.
Squinting, iii. 53.
Squirrel, ii. 310, 311.
Stabiæ, i. 206.
Stachys, v. 55.
Stacte, iii. 130, 131.
Stag-beetle, iii. 33—used as an amulet, 34—remedies derived from, v. 454.
Stagira, i. 301.
Stagmint, v. 209.
Stagonia, iii. 128.
Stagonitis, iii. 152.
Stags, an account of, ii. 299–302—ruminate, 549—maggots in their brain, iii. 48—with four kidneys, 73.
Stag-wolf, ii. 284.
Stakes, iii. 495.
Stalactites, v. 482.
Standard of the Roman legions, ii 485, 486.
Stanko, i. 484.
Stannum, vi. 212, 214, 215.
Staphis, iv. 464.
Staphyle, iv. 466, 467.
Staphylinos, iv. 218, 219.
Staphylodendron, iii. 368.
Staphylus, i. 373.
Starch, iv. 19, 20, 446.
Starfish, ii. 458, 474.
Starlings, ii. 506, 507, 524.
Stars, an account of the, i. 19, 20, 23, 25–31, 35, 36, 42–50, 52, 53, 59, 64—first observations of the, ii. 235—their influence on fish, 397—arrangement of, according to days and nights, iv. 74–77—rising and setting of, 77, 78—prognostics derived from, 120, 121.
Star-thistle, iv. 401.
Statice, v. 172, 173.
Statine wine, iii. 241; iv 471.
Statonian wine, iii. 242.
Statue, plants growing on the head of, v. 68, 69.
Statues, of gold, vi. 105, 106—of silver, 136, 137—of brass, 154–158 — of iron, 206—the heads of, changed, 224.
Statyellæ, v. 472.
Steatitis, vi. 458.
Steatomata, v. 110.
Stelephuros, iv. 357.
Stelis, iii. 434.
Stellio, iii. 31; v. 397, 402, 403—figurative use of the, name, v. 451.
Stemmata, vi. 278.
Stems of plants, iv. 355, 356.
Stephaneplocos, iv. 305; vi. 273.
Stephanomelis, v. 205.
Stephanus, vi. 318.
Stephanusa, vi. 177.
Stergethron, v. 144.
Sterile trees, iii. 202.
Sterility, iv. 97–101—remedies for, iv. 101, 102.
Stertinius, Q., v. 373.
Stesichorus, ii. 510.
Sthenelus, Acilius, iii. 234, 235.
Sthennis, vi. 169, 187.
Stibi, vi. 115, 116.
Stilo, Ælius, ii 477.
Stimmi, vi. 115, 116.
Sting-ray. *See* "Pastinaca."
"Stipendium," meaning of the word, vi. 89.
Stobolon, iii. 132.
Stobrum, iii. 135, 136.
Stœbe, iv. 401.
Stœchades, i. 212.
Stœchas, v. 169, 266.
"Stolo," origin of the name, iii. 440.
Stolo, Licinius, iv. 8.
Stomach, an account of the, iii. 64—remedies for pains and affections of, v. 164, 165, 344, 437, 438.
Stomatice, iv. 499, 509, 510, 511; v. 38.
Stomoma, vi. 194, 195.
Stone, reproduction of, vi. 358.
Stone of Armenia, vi. 327.
Stone of Assos, vi. 357, 358.
Stone of Naxos, vi. 327.
Stone of Scyros, vi. 357.
Stone of Siphnos, vi. 368.
Stone of Tibur, vi. 324.
Stone-crop, iv. 411; v. 144.
Stone-moss, v. 254.
Stone-quarries, when first opened, ii. 223.
Stones of fruit, iii. 326, 327.
Stones, showers of, i. 66.
Stonework, various kinds of, vi. 372, 373.
Storax, iii. 136, 151, 152; v. 11.
Storks, ii. 501, 502, 503, 506.
"Strabo," meaning of the name, ii. 147; iii. 53.
Strabo, his acute vision, ii. 162.

Strabo, the geographer, his birth-place, ii. 6 — his work quoted, i. 117, 134, 141, 171, 188, 223, 225, 231, 236, 281, 292, 293, 297, 300, 301, 311, 313, 315, 316, 317, 323, 328, 329, 332, 334, 344, 376, 422, 424, 447, 449, 452, 454, 458, 459, 464, 466, 468, 473, 478, 485, 486, 487, 488, 491; ii. 3, 4, 5, 8, 11, 12, 32, 34, 70, 71, 73, 90, 96
trabo of Lampsacus, ii. 242.
Strainers for wine, iv. 475.
Strategies, ii. 19.
Stratiotes, v. 68.
Stratonice, vi. 278, 279.
Stratonicus, vi. 139, 184, 185, 187.
Strawberry, iii. 320.
Strength, instances of extraordinary, ii. 160, 161.
Strepsiceros, ii. 347; iii. 44.
Strictura, vi. 207.
Strigil, v. 145.
Strix, iii. 82.
Strix scops, ii. 530, 531.
Strombi, vi. 49.
Stromboli, i. 222.
Strongyle, i. 222.
Strongylion, vi. 183, 184.
Strophiolum, iv. 304, 305.
Strumus, v. 148, 149, 150, 241.
Struthea, iii. 293.
Struthiocamelus, ii. 478, 479.
Struthion, v. 39, 40.
Struthopodes, ii. 131.
Strychnon, iv. 384, 385; v. 241, 266.
Strymon, i. 302, 303.
Stubbing, iv. 66.
Stucco, vi. 374.
Studiosus, the gladiator, iii. 86.
Studious men, hellebore for, v. 97, 98.
Stuppa, iv. 136.
Sturgeon, ii. 383, 384, 398, 399; vi. 66.
Stymmata, iii. 161.
Stymphalis, i. 133; iii. 43.
Stymphalus, i. 286.
Styptics, v. 48.
Styx, i. 136; v. 470.
Suani, ii. 11, 22.
Suari, ii. 46.
Subdialis, vi. 377.
Subiaco, i. 234, 235.
Subis, ii. 493.
Subjugus, v. 469.
Sublaqueum, i. 234.
Sublician Bridge, vi. 345.
Subsolanus, i. 73; iv. 116.
Subtegulana, vi. 377.
Subulo, iii. 44.
Suckers of trees, iii. 463.
Suculæ, i. 67; iv. 87.
Sudines, vi. 385.
Sudis, vi. 66.
Sudras, ii. 44.
Suessa Pometia, i. 204—its destruction, ii. 154.
Suessiones, i. 354.
Suet, v. 326, 327.
Suetonius Paulinus, i. 382, 497.
Suevi, i. 347.
Suez, i. 423.
Suffocations, hysterical, iii. 75.
Sugar, iii. 114.
Suilli, iv. 430.
Sulmo, i. 231; iii. 529; vi. 208.
Sulphate of lime, vi. 376.
Sulphur, vi. 291, 292, 293.
Sulphur-wort, v. 126.
Sulpicius Gallus, i. 36.
Sulpicius, Servius, v. 367.
Sumach, iii. 179, 180—used for preparing leather, 180—remedies derived from, v. 38.
Summanus, i. 82; v. 391.
Summer flowers, iv. 437, 438, 439.
Summer honey, iii. 13.
Sun, an account of the, i. 34, 38, 39, 50, 51—several seen at once, 62, 63—prognostics derived from the, iv. 417, 418, 419.
Sun-dial, the first at Rome, ii. 238—in the Campus Martius, vi. 334, 335.
Sunfish, vi. 24.
Sunflower, iv. 413, 414, 415.
Sunium, i. 289.
Supercilia, iii. 55.
Superficies, how calculated by Pliny, ii. 109.
Superfœtation, ii. 144, 349, 543
Supernatis, iii. 294.
Superstition, i. 23, 24.
Superstitions. *See* "Absurdities," and "Magic."
Superstitious beliefs, relative to animals, v. 366, 367—of various kinds, 283–286, 298, 299.
Supplication, attitudes of, iii. 88.
Sura, Mamilius, ii. 355, 554.
Sura, the proconsul, ii. 147.
Surnames, derived from trees, iii. 440—from agriculture, iv. 5.
Surrentum, i. 197—wines of, iii. 241; iv. 470.
Sus babirousa, ii. 345.
Susa, ii. 62, 79.
Susinum, iii. 163, 165.
Sutlej, ii. 41, 47.
Swallows, i. 307; ii. 505, 506, 521—avoid the city of Thebes, 505—used for carrying messages, 505—an account of, 513, 514—at the mouth of the Nile, 514—incapable of being taught, 526.
Swallow-wort, v. 56, 114.
Swammerdam quoted, ii. 428.
Swans, ii. 502, 503—their singing, 503.
Sweat, the, iii. 78.
Sweet apples, iv. 497.
Sweet wines, iii. 248, 249, 250.
Sweet-scented calamus, iii. 144—sweet-scented rush, iii. 144; iv. 364.
Sweet-wort, iii. 274.
Swiftness, in runners, ii. 161—in animals, iii. 67.
Swine, living, gnawed by mice, iii 76—of Illyricum, have solid hoofs, 89—eat serpents, 97—their mode of feeding, 349, 350—the grease of, v. 324, 325, 326.
Swordfish, ii. 359, 390; vi. 8.
Syagri, iii. 175.
Sybaris, i. 224—the destruction of, ii. 163—the cavalry of, 318.
Sybaris, the river, v. 476.
Syce, v. 261.
Scythis, vi. 461.
Syene, i. 107, 414, 415—ii. 97.
Sygaros, ii. 88.
Sylla, the Dictator, i. 85, 206, 316; v. 206; vi. 323, 389—his success and dreadful death, ii. 190, 191—his memoirs, iv. 394—his triumph, vi. 76.
Symboli, Port of the, i. 334.
Syme, i. 484.
Sympathy, iv. 206; v. i; vi. 12, 13, 407.
Symphyton petræon, v. 231, 232.
Symplegades, i. 338.
Symplegma, vi. 314.
Synnephitis, vi. 449.
Synochitis, vi. 461.
Synodontitis, vi. 457, 459.
Synodus, vi. 457.
Syphax, i. 385.
Syracuse, i. 217.
Syrbotæ, ii. 101, 134.
Syreon, v. 71, 72.
Syria described, i. 423—Antiochia described, i. 436—the trees of, iii. 178.

Syricum, vi. 240.
Syrie, i. 469.
Syringia, iii. 405.
Syringitis, vi. 457.
Syrites, iii. 74.
Syron, v. 165, 166.
Syrtes, i. 391.
Syrtitis, vi. 457.

T.

Tabanus, iii. 85.
Table-napkins, i. 1, 170—of asbestus, iv. 136, 137.
Tables, large, iii. 195, 196, 197.
Tablets, writing, iii. 186.
Tacapa, iii. 388—its fertility, iv. 67.
Tachos, i. 471.
Tacitus, Cornelius, ii. 158.
Tacitus, the historian, quoted, i. 136, 330, 347, 450.
Tacompsos, ii. 98.
Tadmor, i. 445.
Tadpoles, ii. 462, 463; vi. 50.
Tænarum, i. 282, 283.
Tagasta, i. 395.
Tagliamento, i. 249.
Tagus, i. 264.
Tails, men with, ii. 134—of insects, iii. 35—of animals, 92, 93.
Talc, vi. 368, 369, 446.
Talgæ, i. 399.
Tallies, iii. 372.
Tallow, v. 326, 327.
Talpona, iii. 229.
Tamarica, v. 29, 30.
Tamaricus, river, v. 480.
Tamarindus Indica, iii. 110, 111.
Tamarisk, iii. 374; v. 29, 30.
Tamarix, v. 29, 30.
Taminia, iv. 446, 465, 468.
Tanagra, i. 292.
Tanais, i. 327, 335; ii. 14.
Tanaquil, ii. 336; vi. 384.
Tanarus, i. 244.
Tangier, i. 374.
Tannin, iv. 461, 484, 487, 500, 508, 519; v. 6.
Tanning, iv. 499.
Tanos, vi. 413.
Taos, vi. 459.
Tapeworm, remedies for, v. 348, 349.
Taphiusan stone, vi. 365.
Taphræ, i. 374.
Taposiris, vi. 41.
Taprobane, ii. 134, 430; vi. 59—described, ii. 51.
Tar, iii. 361—water, v. 18.
Tarandrus, ii. 304.
Tarantula, v. 401.
Tarbelli, v. 472.
Tarda, ii. 500.
Tarentine red, ii. 447.
Tarquinii, i. 190—Lake of, i. 123.
Tarquinius Priscus, vi. 72, 229, 347, 384.
Tarquinius Superbus, i. 204; iii. 193; iv. 150, 196, 197.
Tarquitius, i. 148.
Tarraco, i. 166; iv. 133—wines of, iii. 244.
Tarragona, i. 168.
Tarshish, i. 156, 369.
Tarsus, i. 447.
Tartessos, i. 156, 399.
Tarum, iii. 142.
Tarutius, iv. 126.
Tarvisium, i. 248.
Tasitis, v. 478.
Tattooing, practice of, ii. 8; iv. 389—a probable allusion to, ii. 145.
Taurica, i. 333.
Taurini, i. 247.
Tauriscus, vi. 139, 318.
Tauromenian wine, iii. 242.
Tauron, ii. 241.
Taurus (bird), ii. 522.
Taurus (range of), i. 453.
Taxilla, ii. 41.
Taygetus, i. 283.
Teal, ii. 528.
Teats, iii. 75.
Teazel, v. 148.
Tecolithos, vi. 362, 443, 457.
Tectæ, ii. 332.
Tectosages, i. 492.
Teeth, the human, ii. 153, 154, 155—superstition as to, 155—serrated, 549; iii. 56, 61—an account of, 56, 57—canine, 56, 58, 60—hollow, 57—of fish, 57—of serpents, 57, 58—of other animals, 58—marvels connected with, 59, 60—cut in old age, 59—double row of, 60—never changed, 60—age of animals estimated from, 60, 61—human, venom in, 61—remedies for diseases of, v. 145, 146—remedies derived from the human, 291.
Tegea, i. 286.
Telchina, ii. 12.
Telephanes, v. 177.
Telephion, v. 267, 268.
Telephus, v. 94; vi. 211.
Telestis, vi. 268.
Telinum, iii. 164.
Telis, v. 74.
Telmessus, i. 457.
Telmissus, i. 462.
Tembrogius, ii. 8.
Temetum, iii. 252.
Temesvar, i. 306.
Tempe, i. 296
Tempests, i. 80—prognostics derived from, iv. 122.
Temples, ornaments of, made of brass, vi. 153—marvels connected with, 344.
Temsa, i. 209.
Temulentia, iii. 253.
Tenedos, i. 488.
Teneriffe, ii. 108.
Tenesmus, remedies for, v. 348, 349.
Tenites, vi. 436
Tenos, i. 318.
Tents (surgical), v. 520.
Tentyra, i. 407.
Tentyris, i. 417.
Tentyritæ, ii. 289.
Tephrias, vi. 328.
Tephritis, vi. 457.
Terebinth, iii. 179; v. 12, 13, 16.
Terebinthine, iii. 179, 357; v. 16.
Teredo, iii 2, 22, 367, 425.
Terence quoted, i. 318.
Tereus, i. 307.
Tergeste, i 250.
Tergilla, iii 275.
Terpander, ii. 231.
Terrace-pavements, vi. 377.
Terracina, i. 194.
Terrestrial animals, generation of, ii. 540-544.
Tesseræ or watchwords, ii. 229.
Testes, iii. 92—injuries of the, 92—remedies for diseases of, v. 187.
Testudo, ii. 288.
Tethalassomenon, iii. 248.
Tethea, vi. 39.
Tetrao, ii. 500.
Tetrarchies, i. 432, 433.
Tettigometra, iii. 32.
Tettigonia, iii. 31.
Teucer, the artist, vi. 140.
Teucer, the hero, i. 481.
Teuchites, iv. 364.
Teucris, v. 52, 53.
Teuthalis, v. 259, 260.
Teuthrion, iv. 326.
Teutoni, i. 346.
Text of Pliny, its defective state, vi. 1.
Thalami, ii. 330.
Thalassagle, v. 65.
Thalassites, iii. 248.
Thalassomeli, v. 498.
Thales, i. 37; iv. 127; vi. 338.
Thalictrum, v. 268.
Thamyris, ii. 231.
Thapsia, iii. 205, 206.
Thapsus, i. 391.

Thasos, i. 324—wines of, iii. 245—grapes of, 262.
Theamedes, iv. 207; vi. 356, 357.
Theangalis, v. 66.
Theatre, of Pompeius, vi. 350—of Scaurus, 163, 349, 350.
Theatres, awnings for, iv. 138 — saffron-water used in, 321.
Thebaic stone, vi. 331, 367.
Thebais, i. 407.
Thebasa, i. 493.
Thebes, in Bœotia, i. 290—the taking of, vi. 174.
Thebes, the Corsian, i. 277.
Thebes, in Egypt, i. 416; vi. 343.
Thebes, in Thessaly, i. 294.
Thelycardios, vi. 457.
Thelygonon, v. 191, 213, 214, 239.
Thelyphonon, v. 128, 218–221.
Thelypteris, v. 245. 246.
Thelyrrhizos, vi. 457.
Themiscyra described, ii. 8.
Themison, iii. 100; v. 372.
Theobrotion, v. 64, 65, 66.
Theochrestus, vi. 467.
Theodorus, ii. 226; vi. 184, 283, 342.
Theodosia, i. 334.
Theomenes, vi. 467.
Theomnestus, vi. 145, 188, 267.
Theon, vi. 280.
Theon Ochema, i. 380; ii. 104.
Theophrastus, i. 9, 10, 270—quoted, 193, 194; iii. 197, 441, 478, 525; iv. 208; vi. 366, 461.
Theopompus, i. 150.
Theramne, i. 283.
Theriaca, grapes of the, iv. 463.
Theriace, v. 384, 396—composition of, iv. 299, 300.
Therimachus, vi. 169, 256.
Therionarca, v. 65, 124.
Thermæ, Gulf of, i. 300, 324.
Thermopylæ, i. 294.
Theseus, i. 289; iv. 426.
Thesion, iv. 359. 417.
Thesmophoria, v. 26.
Thespiades, vi. 321.
Thespiæ, i. 290; v. 475.
Thesproti, i. 271.
Thessalonica, i. 300.
Thessalus, v. 373.
Thessaly described, i. 294—its witchcraft, v. 423.
Thibli, ii. 127.
Thieldones, ii. 322.
Thirst, successfully resisted, ii. 159—how prevented in Gætulia, 550—how allayed, iii. 99.
Thistles, various kinds of, iv. 190, 191, 299, 351, 353, 354, 401, 425, 426; v. 45, 239.
Thlaspi, v. 268, 269.
Thomna, iii. 128.
Thorn, iv. 421; v. 43–46.
Thorn, Egyptian, iii. 183.
Thorn, Indian, iii. 109.
Thorn, royal, iii. 207, 208.
Thorn, thirsty, iii. 211.
Thorybethron, v. 173.
Thos, ii. 304.
Thoth, the Egyptian month, v. 256.
Thrace described, i. 302.
Thracia (stone), vi. 457.
Thranis, vi. 65.
Thrasimenus, i. 116.
Thrason, vi. 188.
Thrasyllus, i. 149.
Thread gold, vi. 98.
Threshing-floor, iv. 70, 102.
Thrissa, vi. 65.
Throat, iii. 63, 64—remedies for affections of, v. 433.
Thrushes, ii. 506, 509—fattened, ii. 501.
Thryallis, v. 127, 128.
Thryselinum, v. 135.
Thucydides, i. 119, 270, 474; ii. 175.
Thule, i. 109, 145, 352; ii. 113.
Thunder, i. 69, 70, 80–83, 86—ascribed to Jupiter, 51, 52—prognostics from, iv. 121—truffles produced by, 144.
Thurii, wines of, iii. 243.
Thyatira, i. 468.
Thymbræum, iv. 293.
Thyme, iv. 292, 293, 331, 332, 375, 376.
Thymelæa, iii. 201.
Thynias, ii. 22.
Thynni, ii. 385.
Thynnis, vi. 65.
Thyon, iii. 197.
Thyrea, i. 283.
Thyrsus, iii. 187.
Thysdris, ii. 138.
Tiber, i. 191, 192.
Tiberias, i. 429.
Tiberius, the Emperor, i. 264; ii. 197, 198; iii. 241, 272; iv. 156, 174, 188, 189; v. 283, 390, 426; vi. 81, 234, 381 — could see in the dark, iii. 51.
Tibur, stone of, vi. 324.
Tiburnus, iii. 431.
Ticks, various kinds of, iii. 40, 41.
Tides, an account of the, i. 124–128.
Tifernum, i. 240.
Tifernus, i. 231.
Tiga, i. 395.
Tigers, when first seen at Rome, ii. 275—their nature, 275, 276.
Tigranes, ii. 82.
Tigranocerta, ii. 19.
Tigress, instinct of the, ii. 248.
Tigrinæ, iii. 196.
Tigris, ii. 62, 75.
Tiles, the invention of, ii. 222 — an account of, vi. 368.
Tiliaventum, i. 249.
Timæus, i. 30, 148, 372; vi. 145, 222.
Timagenes, i. 270.
Timanthes, vi. 251, 254, 255.
Timarchides, vi. 188.
Timarchus, vi. 170.
Timarete, vi. 249, 281.
Timaris, vi. 455.
Timaristus, iv. 388.
Timavus, i. 266.
Timber, felling of, iii. 415, 416, 417.
Time, Roman reckoning of, ii. 125.
Time-pieces, the first, ii. 237.
Timictonia, vi. 459.
Timocles, vi. 170.
Timomachus, vi. 277.
Timon the misanthrope, ii. 160.
Timosthenes, i. 371.
Timotheus, the musician, ii. 231.
Timotheus, the sculptor, vi. 188, 316, 317.
Tin, i. 351—first use of, ii. 225—an account of, vi. 212.
Tines, iii. 425.
Tingi, i. 374.
Tinning, vi. 214.
Tinnunculus, ii. 519, 582.
Tinting of flowers, iv. 317.
Tinus, iii. 333.
Tipasa, i. 396.
Tiphe, iv. 81, 35.
Tiresias, vi. 456.
Tiridates, v. 428.
Tiro, Sabinus, iv. 204.
Tiro, Tullius, i. 147.
Tiryns, i. 284.
Tisicrates, vi. 176, 187—colouring of, 282, 283.
Tithymalis, v. 179.
Tithymalon, iv. 279, 280.

Tithymalos, v. 177–180.
Titidius Labeo, vi. 230.
Titles of Greek works, i. 7.
Titus, the Emperor, i. 2, 147; vi. 320.
Tlepolemus, iv. 302.
Tmolus, i. 465; ii. 203—wines of, iii. 245, 246.
Toad, vi. 22. *See also* "Bramble-frog," and "Rubeta."
Tobit, cure of his father's blindness, vi. 30.
Toes, eight on each foot, ii. 130.
Toga, statues clad in the, vi. 155.
Toga Phryxia, ii. 337.
Toga picta, ii. 443.
Toga prætexta, ii. 337, 338, 411, 447, 448; vi. 72.
Toga pura, ii. 336.
Toga undulata, ii. 336.
Toledo, i. 171.
Toletum, i. 171.
Tolosa, i. 180.
Tomentum, ii. 335; iv. 134.
Tomi, i. 306; vi. 65.
Tonberos, ii. 58.
Tone, vi. 235. 236.
Tongres, v. 476.
Tongue, of various animals, iii. 61—asperities of, in some, 61.
Tonsillary glands, iii. 62—remedies for diseases of, v. 342.
Tooth of wolf used as an amulet, iii. 59.
Tooth-ache, remedies for, v. 338, 339, 430, 431; vi. 34.
Toothpicks, v. 19.
Tooth-wort, v. 245, 257.
Toparchies of Judæa, i. 427.
Topaz, vi. 427, 434, 435.
Topazos, vi. 426, 427.
Tophus, iii. 447, 448; vi. 371.
Toranius, his trick upon Antony, ii. 148.
Torch-tree, iii. 358; v. 19.
Torcs of gold, vi. 86.
Tordylon, v. 71, 72.
Toreutic art, vi. 171, 247, 256.
Tornadoes, i. 80.
Torone, i. 300.
Torpedo, ii. 396, 411, 451, 456; vi. 4.
Torquatus, his defeat of the Gaul, vi. 75.
Torquatus, Novellius, the drunkard, iii. 272, 273.
Torques, ii. 171; vi. 86.
Tortivum, iii. 268.
Tortoise, vi. 15–18.
Tortoise-shell, ii. 379; iii. 429; vi. 16.
Tortona, i. 186.
Touchstones, vi. 125, 327, 328.
Toulouse, i. 180.
Tourmaline, vi. 356, 398, 404, 405, 424, 425, 448, 453.
Towers, by whom first erected, ii. 223.
Toxica, iii. 360; iv. 397; v. 10, 333.
Toxicum, v. 171.
Trabea, ii. 337, 447.
Trachin, i. 294.
Trachinia, v. 269.
Trachonitis, i. 433.
Trafalgar, Cape, i. 156.
Tragacanthe, iii. 202.
Tragelaphus, ii. 302.
Tragemata, iii. 177.
Tragi, ii. 455.
Tragion, iii. 201, 202.
Tragonis, v. 269, 270.
Tragopan, ii. 530.
Tragopogon, iv. 349; v. 270.
Tragoriganum, iv. 268.
Tragos, iii. 202; v. 270.
Tragum, iv. 29.
Tragus, ii. 455; vi. 65.
Trajan, the Emperor, his death, i. 448.
Tralles, i. 464.
Transpadana, i. 246.
Transplanting, iii. 468–471, 487–491.
Trapezus, ii. 9.
Travertine, vi. 371.
"Treacle," origin of the word, iv. 300; v. 380.
Treasury, the Roman, vi. 95.
Trebellian wine, iii. 243.
Trebizond, ii. 9.
Trebula, wine of, iii. 244.
Trees, their place in the system of Nature, iii. 101—early history of, 102—consecrated to peculiar divinities, 102—uses of, 103—exotic, 103—of huge size, 105—of India, 107, 108—of Asia, 115, 116—of Persia, 117—that grow in the sea, 117—that never lose their leaves, 118—products of, 119—exhibited in triumphal processions, 147—of Syria, 178—of Phœnicia, 178—of Egypt, 180—in which fruits germinate one beneath the other, 182—of Æthiopia, 193, 194—of Mount Atlas, 194, 195—of Cyrenaica, 200—of Asia and Greece, 201—of the Mediterranean, 209, 210—gigantic, in the Indian Seas, 212—of the Troglodytic Sea, 212—methods of grafting, 302—countries that have none, 339—wonders connected with those of the North, 340, 341—various products of, 350, 351—the bark of, 354, 255—those of which the wood is valued, 365—localities of various, 370, 371—species of, 373—evergreen, 373, 374—leaves of, 374–379—blossoms of, 380, 383—fecundation of, 381—which bear the whole year, 385—which bear no fruit, 385—looked upon as ill-omened, 386, 387—which soonest lose their fruit or flowers, 386—unproductive in some localities, 387—their mode of bearing, 387—in which the fruit appears first, 387—with two crops in a year, 388—which become old most rapidly or most slowly, 389, 390—with various products, 390—differences in their trunks and branches, 391, 392—roots of, 391—trunks of, 391, 392—branches of, 391, 392—bark of, 393—which grow spontaneously, 394, 395, 396—changes in their nature, 397—juices of, 412—veins and pores of, 413, 414—the felling of, 415—size of, 417—largest in size, 419—some proof against decay, 422, 423—age of, 429, 430, 431—shortlived, 432—famous, 433—enormous prices of, 438, 439—surnames derived from, 440—influence of weather upon, 441, 442—their mode of bearing, 460—which never degenerate, 461, 462—interval left between, 472, 473—shadow thrown by, 473, 474—growth of, 475—which grow from cuttings, 486—diseases of, 517–524, 527, 530—which are injurious to one another, 525, 526—prodigies connected with, 526, 527—incisions in, 529, 530—mode of manuring, 531, 532—medicaments for, 532, 533, 534.
Trefoil, iv. 330, 331, 374, 375.
Trent, i. 252.
Treviso, i. 248.

Triarius, ii. 8.
Triballi, i. 297.
Tribes of Rome, iv. 6.
Tribulum, iv. 103.
Tribulus, iv. 351, 355, 400, 401.
Tribuni ærarii, vi. 83.
Tributanus, the gladiator, ii. 160.
Tributes paid in silver, vi. 93.
Trichecum dugong, ii. 361.
Trichecum manatum, ii. 361, 370.
Trichecus rosmarinus, ii. 364.
Trichias, ii. 389.
Trichomanes, iv. 415, 416, 417; v. 268.
Trichrus, vi. 457.
Tricoccum, iv. 413, 414, 415.
Tricongius, iii. 272.
Tridentum, i. 252.
Triens, the story of the Servilian, vi. 205.
Trieste, i. 250.
Trifoline wines, iii. 244.
Trigarium, vi. 464.
Trigarius, vi. 109.
Trigemenian Gate, iv. 7.
Triglitis, vi. 459.
Triophthalmos, vi. 458.
Triorchis, ii. 487; iii. 92; v. 105.
Tripatinium, vi. 287.
Tripolium, v. 167.
Tripudia solistima, ii. 497.
Triton, the river, i. 394, 412.
Tritons, ii. 362, 363.
Trispithami, ii. 132.
Triumphs, usages at, v. 290, 291; vi. 73.
Triumpilini, i. 254.
Trixago, v. 52, 53.
Troas described, i. 476.
Trochi, ii. 467.
Trochilus, ii. 288, 551.
Trœzen, i. 284; v. 475—wine of, iii. 262.
Troglodytæ, i. 134, 329, 398, 404; ii. 95, 96, 130, 134, 379; iii. 45, 124, 142, 143; v. 478; vi. 426, 427.
Troglodytic Sea, iii. 212, 213.
Troglodytica, i. 103, 107, 108; vi. 451—described, ii. 93.
Trogus Pompeius, ii. 240.
Trophonius, v. 477; vi. 176.
Trophy erected on the Alps, i. 256.
Trossuli, vi. 85, 86.
Trowsers, i. 173.
Troxallis, v. 439, 460.
Truffles, iv. 142, 143, 144.
Trumpet-fish, ii. 391, 396.
Trunks of trees, iii. 391, 392.
Trychnum, iv. 384, 385. *See also* "Strychnon."
Trygon, ii. 460.
Tuber (fruit) iii. 297, 467.
Tuber (truffle), iv. 142, 143, 144.
Tuber terræ, v. 125, 126.
Tubero, C. Ælius, ii. 210.
Tubero, Q. i. 147.
Tuccia, v. 279.
Tuditanus, C. Sempronius, i. 251; iii. 156.
Tufa, iii. 447, 448; vi. 357, 371.
Tullius, the dwarf, ii. 157.
Tumours, remedies for, v. 201, 202—inflamed, remedies for, 188, 189.
Tungri, waters of, v. 476.
Tunica recta, ii. 336.
Tunny, ii. 382, 385-388.
Turbith, v. 224.
Turbot, ii. 389, 396, 452.
Turcæ, ii. 15.
Turcomania, ii. 75.
Turduli, ii. 155.
Turf, iii. 340.
Turin, i. 247.
Turnips, iv. 48, 49, 161, 162, 214, 215—wine from, iv. 478.
Turnsole, iv. 413, 414, 415.
Turpentine, iii. 179, 357; v. 16.
Turpentine-tree, iii. 179; v. 12, 13, 16.
Turpilius, vi. 230.
Turquoise, vi. 427, 428.
Tursio, ii. 377; vi. 66.
Turtles, described, ii. 369; vi. 15—various kinds of, ii. 377, 378, 379—how taken, 378, 379—propagation of, 378, 379—without tongue or teeth, iii. 64.
Tuscan architecture, vi. 285.
Tuscany, modern, the wines of, iii. 229.
"Tusci," origin of the name, i. 187.
Tusculum, i. 202.
Tuscus, Fabricius, i. 269.
Tussilago, v. 164.
Twelve Tables, Laws of the, iii. 55; iv. 6, 306, 307; v. 281, 426.
Twins, ii. 138.
Tyana, ii. 6.
Tylos, the island of, ii. 85; iii. 117, 118.
Tympania, ii. 432.
Tympanum, iv. 115.
Tymphæi, i. 275.
Tyndaris, i. 219.
Typhon (wind), i. 57, 79.
Tyra, river, i. 330.
"Tyrant," meaning of the word, ii. 227.
Tyrian purple, ii. 447, 449.
Tyrrheni, i. 187.
Tyrus, i. 434.

U.

Ubii, i. 355.
Ulcers, remedies for, v. 206–209, 359, 458, 459, 460; vi. 52.
Ulex, vi. 103.
Uliarus, i. 360.
Ulophonon, iv. 407, 408, 409.
Ultramarine, vi. 432.
Ulula, ii. 492.
Ulysses, vi. 265, 267.
Umber, vi. 239.
Umbilicus, iv. 113.
Umbri, i. 187, 191.
Umbri, sheep so called, ii. 339.
Umbria described, i. 237.
Umbricius Melior, ii. 554.
Unedo, iii. 321; iv. 516.
Unguents, iii. 159—when first used, 159, 160—various kinds of, 160–165—regal, 166—mode of testing, 166—boxes for, 166—excesses of luxury in, 167, 168—when first used by the Romans, 169, 170.
Ungulus, vi. 73.
Unicorn, ii. 279, 281.
Union of Greece and Italy by a bridge, contemplation of, i. 226.
Union of high qualities with purity, ii. 169.
Unions, unnatural, ii. 134—unproductive, ii. 148, 149.
Ura, i. 445.
Urang-utang, ii. 106. *See also* "Satyrs."
Uranoscopos, vi. 30.
Urceolaris, iv. 407.
Uredo nivalis, i. 87.
Urine, human, remedies derived from, v. 299, 300, 301—incontinence of, vi. 46.
Urinum, ii. 537, 538, 539.
Urna, iii. 45.
Urtication, iv. 402, 403.
Urus, ii. 262—horns of the, iii. 45.
Usta, vi. 239.
Uterus, position of the fœtus in the, ii. 139—of animals in, 544—described, iii. 75.
Utica, i. 389—Temple at, iii. 424.
Uvula, iii. 62.

V.

Vaccinium, iii. 373.

Vacuna, i. 234.
Vagienni, i. 243.
Valens, Vettius, v. 373, 378.
Valens, Vinnius, ii. 161.
Valeria, ii. 153; vi. 160.
Valeria (an eagle), ii. 481.
Valerian, iii. 121; iv. 370; v. 102.
Valerianus, i. 269; ii. 354.
Valerius Flaccus quoted, i. 49.
Valerius Maximus, ii. 240—quoted, i. 143.
Valgius, C., iv. 300; v. 78.
Vallum, iii. 342.
Valtelline, i. 255.
Vandili, i. 345.
Vanishing men, ii. 135.
Vannius, i. 330.
Vappa, iii. 241, 266.
Var, i. 174.
Variæ, ii. 508.
Varicose veins, remedies for, iii. 88; v. 353.
Varro, M., his statue erected in his lifetime, ii. 176—how buried, vi. 286, 287—his works quoted, i. 147, 235, 260; ii. 35; iii. 304, 374, 525; iv. 44, 53, 63, 81, 103, 106, 438, 448; v. 157, 394, 408; vi. 285, 342, 384.
Varro, P. Atacinus, i. 268.
Varus, the slaughter of, ii. 198.
"Varus," the origin of the name, iii. 89.
Vectis, i. 351.
Veientana, vi. 457.
Veii, i. 190.
Veins, iii. 78—varicose, 88; v. 353.
Vejovis, iii. 424.
Vela, iv. 453.
Velia, Lake, v. 474.
Velinus, i. 234.
Veliternum, iii. 105—wine of, 241.
Venafrum, i. 198—oil of, iii. 279.
Venedi, i. 344.
Veneering, iii. 195, 196, 427, 428, 429.
Veneris crines, vi. 457.
Venom in the human teeth, iii. 61.
Venomous, sea-animals, ii. 459, 460—animals that are, will not die of hunger, 549.
Ventidius, P., ii. 189.
Vents in the earth, i. 121.
Venus, worship of, i. 481.
Venus Anadyomene, vi. 259, 260, 261.
Venus' comb, v. 70, 71.
Venus de Medici, vi. 312, 318.
Venus' hair, vi. 457.
Venusia, i. 228.
Veratrum, v. 96, 97, 98.
Verbascum, v. 127.
Verbena, iv. 391.
Verbenaca, v. 121, 122.
Verbenarius, iv. 391.
Verdigris, its medicinal efficacy, v. 94—an account of, vi. 195–198.
Vergiliæ, i. 68; iv. 79, 88, 89.
Vermifuge, iv. 452.
Vermilion, derivation of the word, v. 5—an account of, vi. 119, 120.
Verona, i. 252.
Verres, vi. 167.
Verrius Flaccus, i. 269.
Versipellis, the story of, ii. 283.
Vervain, v. 121, 122, 130.
Vervain mallow, v. 224.
Vespasiani, family of the, i. 293.
Vespasianus, the Emperor, iii. 140; vi. 184, 271.
Vesper, i. 29.
Vessels of burden, of gigantic size, vi. 333.
Vestal Virgins, v. 290.
Vestalis, Fabius, ii. 240.
Vestilia, ii. 140.
Vestinus, iv. 387.
Vestorius, vi. 142.
Vesuvius, i. 197.
Vetches, iv. 46, 51, 450, 451.
Veternum, v. 355.
Vettonica, v. 111, 112.
Vetus, Antistius, v. 473.
Vianiomina, i. 262.
Viator, iv. 9.
Vibius, ii. 147.
Vicissitudes, instances of remarkable, ii. 189.
Victims for sacrifice, ii. 329; iii. 79.
Victoriatus, v. 8, 14; vi. 90.
Vienna, i. 262.
Vigintiviri, ii. 212.
Vinalia, iv. 99.
Vincapervinca, iv. 338, 339, 382; v. 57.
Vindex, Julius, iv. 263.
Vine, first cultivation of, ii. 226—the nature of, iii. 215, 218—cultivation of, 218–221—ninety-one varieties of it, 222–233—remarkable facts connected with it, 233–236—profits derived from its culture, 234, 235, 236—shoots of, pickled, 263—training of it, 409—the proper situation for it, 444, 445—grafting of, 482—culture of, 495–517—various kinds of, 499, 500—its uses, iv. 457, 458—leaves and shoots of, 458, 459—cuttings of, 462.
Vine, wild, iii. 255; iv. 464, 465; v. 232.
Vinedressers' reed, iii. 408, 409.
Vinefretter, iii. 534.
Vinegar, iii. 257, 266, 268; iv. 478, 479, 480—lees of, 483.
Vintage, iv. 109, 110, 111.
Violet, iv. 317, 318, 368.
Violet-purple, ii. 447.
Vipers, ii. 311; v. 395, 396, 412—flesh of, eaten, ii. 133—torpor of, 311.
Vipio, ii. 530.
Virgil, the poet, where he died, i. 226—his birthplace, 252—his works forbidden to be burnt, ii. 176—his works quoted, i. 58, 64, 78, 95, 100, 110, 121, 131, 132, 187, 208, 233, 305, 321, 335, 403; ii. 127, 328, 329; iii. 20, 21, 24, 124, 152, 217, 223, 228, 231, 232, 242, 246, 278, 297, 302, 372, 393, 398, 442, 444, 447, 448, 459, 461, 464, 470, 473, 475, 477, 479; iv. 15, 16, 17, 38, 45, 57, 59, 62, 64, 65, 67, 72, 73, 75, 85, 102, 104, 110, 111, 117, 119, 122, 123, 124, 131, 154, 182, 311, 315, 316, 340, 344, 454; v. 25, 41, 365, 381; vi. 71, 139, 179, 240, 320, 383—mistranslated by Pliny, iii. 352.
Virgin Waters, v. 488.
Viscera, the, iii. 70—remedies for pains in, v. 437.
Viscum, iii. 391, 434, 435; v. 6.
Vistula, i. 344, 348.
Visula, iii. 225.
Visurgis, i. 348.
Vital spirit, iii. 65.
Vitality, signs of in man, iii. 96.
Vitellius, the Emperor, vi. 164, 287, 288.
Vitellius, P., iii. 67.
Vitex, v. 26, 27, 28.
Vitiparra, ii. 515.
Vitriol, vi. 200, 295.
Vitruvius Pollio, mentioned, iii. 437—quoted, i. 450; vi. 242, 377.
Vivaria, ii. 345.

Viviparous animals without hair, ii. 381.
Voice, of insects, ii. 3 — of animals, iii. 92, 93 — of man, in a measure forms his physiognomy, 95—its varieties, 95—how deadened, 95—how heightened, 95.
Volcanius, vi. 285.
Volcanoes, i. 139, 140—submarine, v. 473.
Volcatius, ii. 313.
Vologesus, ii. 73.
Volsinii, i. 190; vi. 162.
Volsinium, i. 83.
Volterra, i. 190.
Volturnus, i. 73; iv. 116.
Vomit, the only animals that, iii. 71.
Vomits, the use of, iv. 403.
Vopisci, ii. 144.
Voyages, of discovery, i. 98, 99—to India, ii. 60–63—speedy, instances of, iv. 130—for the recovery of health, v. 13.
Vulcan, i. 324.
Vulture, great European, ii. 486.
Vultures, an account of, ii. 486—how put to flight, iii. 97 — how attracted, 97 — remedies derived from, v. 398, 399.
Vulva, iii. 75.

W.

Wagtail, ii. 551; vi. 446.
Walking-sticks, iii. 205.
Wall-nightingale, ii. 511.
Wall-paintings, vi. 270.
Wall-wort, v. 127.
Walls, when first built, ii 223—formation of, vi. 289, 290, 291—of houses, 324.
Walnuts, iii. 315; iv. 514, 515.
Wanley, Nathaniel, quoted, ii. 136.
Warm springs, i. 133, 195, 266; v. 472.
Warts, remedies for, v. 209, 210; vi. 53.
Wasps, iii. 24, 25, 98.
Water, an account of, i. 96, 97, 98—peculiar properties of, 135, 136, 137—how made potable, v. 2—remarkable facts connected with, 471—properties of, 472 — remedies derived from, 473—impurities of, 484, 485—modes of testing, 485, 486, 487—boiled, 486, 487—mode of searching for, 488, 499—differences in, 489, 490, 491—qualities of, 491, 492—modes of conveying, 494—fresh at sea, 499.
Water-chesnut, iv. 355.
Watering of gardens, iv. 201, 202, 203.
Water-organ, ii. 372.
Water-parsley, iv. 424.
Water-pipes, v. 494.
Water-plants, iii. 403.
Water-spouts, i. 80.
Water-warblers, ii. 510, 511.
Waters, productive of insanity, v. 474—remedial for calculi, 474—curative of wounds, 475—preventive of abortion, 475 — which remove morphew, 475 — which colour the hair, 476 —which colour the body, 476, 477—which aid or impede the memory, 477—which affect the senses, 477—which improve the voice, 477—which cause a distaste for wine, 477, 478—which produce inebriety, 477, 478—which serve as a substitute for oil, 478—salt and bitter, 478—which throw up stones, 478, 479 — which cause laughter, 479—which are a cure for love, 479—which preserve their warmth, 479—in which all things sink, 479—in which nothing will sink, 479, 480—of a deadly nature, 480, 481, 482—which petrify, 482 — their wholesomeness considered, 482, 483, 484—which have suddenly appeared or ceased, 492, 493.
Wax (bees'), iii. 6, 7, 17; iv. 345, 346—writing-tablets of, iii. 186—remedies derived from, iv. 438.
Wax-colours, vi. 244, 245, 272.
Wax of the human ear, remedies derived from, v. 291.
Wealth, immense, instances of, vi. 93, 94, 129, 130, 131.
Weasel, odour of, fatal to the basilisk, ii. 282—remedies derived from, v. 392.
Weather, states of the, i. 69—peculiarities of, 91—its influence upon trees, iii. 441, 442.
Weaving, invention of, ii. 223.
Webs of spiders, iii. 27, 28.
Wedge drawn by a bird from a tree, v. 82.
Weevil, iv. 105, 441.
Weight of the body, ii. 158.
Weights, invention of, ii. 226—Greek and Roman, iv. 386, 387—*and* Introduction to Vol. III.
Wells, invention of, ii. 223—an account of, v. 491.
Weser, i. 348.
Wheat, an account of, iv. 25, 26, 27—Africa productive of, 35, 36—remedies derived from, 440.
Wheat-meal, iv. 440.
Whetstones, iv. 91; vi. 370.
Whey, iii. 84.
Whirlwinds, i. 57, 79, 80.
Whispering-gallery, iii. 95.
White lead, vi. 219, 220.
White squall, iv. 122.
White thorn, eaten, iv. 338—remedies derived from, v. 43.
White vine, iv. 466, 467.
Whitening, iii. 454; vi. 301.
Wicks of lamps, iv. 362, 489.
Wiesbaden, v. 479.
Wild animals, parks for, ii. 345.
Wild boar, ii. 344, 345—the flesh of, a delicacy, 345—eats the salamander, iii. 98.
Wild fig, iii. 311, 312, 313—remedies derived from, iv. 505, 506, 507.
Wild honey, iii. 14.
Wild myrtle, iv. 521.
Wild olive, leaves of, iv. 487, 488.
Wild plants, v. 77, 78, 79.
Wild plums, iv. 508.
Wild pomegranate, iv. 501.
Wild thyme, iv. 197, 198, 292, 293.
Wild vine, iii. 255; iv. 464, 465; v. 232.
Will, remedies depending on the, v. 295, 296.
Willow, iii. 409, 410; v. 25, 26.
Willow-beds, iii. 492, 493.
Willow-herb, v. 196.
Wind-egg, ii. 537, 538, 539.
Windows, iii. 303; vi. 142, 143.
Winds, an account of the, i. 70–79; iii. 445—predicted, i. 222—invention of the theory of, ii. 240—the theory of explained, iv.

113, 114 — the points of, 114–117.
Wine, honied, ii. 215; iii. 246; iv. 437, 438.
Wine-cellars, iii. 268, 269.
Wine-cure, ii. 183.
Wine-lees, iii. 268; iv. 482, 483.
Wine-lofts, iii. 254, 263.
Wine-press, iv. 109, 110.
Wine-vessels, iii. 268, 269, 279.
Wines, the most ancient, iii. 236, 237, 238—colours of, 237, 248; iv. 475—pitched, iii. 238; iv. 476; vi. 371 — nature of, iii. 238, 239—fifty kinds of, 239–245 — drugged, 243—healthfulness of, 243—peculiar tastes in, 244, 245—foreign, 245, 246, 267—recommended by Apollodorus, 247 — salted, 247, 248—disguising of, 248—sweet, 248, 249, 250—made from raisins, 250—second rate, 251—generous, when first made in Italy, 251—inspection of, 252—women not allowed to drink, 252—laws upon, 252—drunk by the ancient Romans, 253—when several kinds were first served at table, 254 — artificial, 256–260; iv. 477, 478—made from fruit, iii. 256, 257—from plants, 257, 258—aromatic, 258, 259—from herbs, 259, 260—from shrubs, 260 — of a miraculous nature, 262 — that change their nature, 263—certain, not used in sacred rites, 263—seasoned with pitch and resin, 265, 266, 267—made from corn, 274—medicinal properties of, iv. 469–473, 477.
Winged animal, the only one that is viviparous, ii. 540.
Wings, iii. 33, 34.
Winking, iii. 54.
Winter-clothes, iv. 80.
Winter-sowing, iv. 79, 80.
Winter-wheat, iv. 29, 32, 33, 35.
Wisdom, remarkable, instances of, ii. 174.
Wisdom-teeth, iii. 59.
Withes, iii. 409, 410.
Witnesses, summoning of, iii. 88.
Witwall, v. 452, 506, 512, 515.
Wolf, Romulus suckled by, ii. 273—an account of the, 282—influence of its eyes, 283—men changed into, 283, 284—its bladder, iii. 74.
Womb, iii. 75—of the sow, iii. 75.
Women not allowed to drink wine, iii. 252.
Wonderful forms of various nations, ii. 122.
Wonders, of various countries, i. 123, 124—of fountains and rivers, 131–138—of fire, 141, 142, 143.
Wood, animals that breed in, iii, 40—for furniture, 195, 196, 197—for fuel, 348, 349, 358—the nature of, 417, 418, 420, 421—fire obtained from, 421 — the lightest, 422—the durability of, 423, 424, 425—used in building, 426—for carpenters' work, 427—united with glue, 427.
Woodcock, ii. 528, 529.
Woodbine, v. 105.
Woodlice, v. 417, 436, 440, 441, 450.
Woodpecker, ii. 494, 508, 515; iii. 519; v. 89, 248, 403—its magical power, ii. 494.
Woodworms, iii. 40.
Wool, various kinds of, ii. 333—its various colours, 333, 334, 335, 338—dyed purple, 445—remedies derived from, v. 381, 382, 383.
Wool-fruit, iii. 297.
Wool-grease, iii. 133; v. 383, 384, 385.
Wool-plant, v. 68.
Woolly sage, v. 221.
Words, the healing efficacy of, v. 278, 279, 280.
World, if more than one, i. 13–16 — form of, 16 — nature of, 16, 17—name of, 17, 18—dimensions of, 53, 54, 55—earth, the middle of, 102.
Worming of dogs, v. 406.
Worms eaten, iii. 519.
Worms, fish so called, ii. 384.
Wormwood, v. 106 — animals that feed on, have no gall, iii. 69—wine made from, 259 — remedies derived from, v. 232–235.
Wounds, remedies for, v. 206, 207, 208, 458, 459, 460.
Wreaths of corn, iv. 3.
Wren, ii. 551.
Wright, Mr. T., on the lead-mines of Britain, vi. 215.
Wryneck, iii. 90.

X.

Xanthos (stone), vi. 452.
Xanthus, the historian, v. 151.
Xanthus, the river, i. 456, 476.
Xenagoras, i. 373.
Xenocrates, artist, vi. 145, 184.
Xenocrates of Aphrodisias, iv. 303.
Xenocrates of Ephesus, iii. 158.
Xenophilus, ii. 207.
Xenophon, i. 373 — quoted, 452; iv. 79, 341; vi. 182.
Xenophon of Lampsacus, i. 270.
Xerxes, i. 300, 305, 315, 317, 473; iii. 526; v. 424.
Xiphias, vi. 8.
Xiphion, v. 134, 135.
Xuthon, vi. 436.
Xylobalsamum, iii. 149.
Xylocinnamomum, iii. 139.
Xyris, iv. 372.

Y.

Yarrow, v. 61.
Yates, Dr., his "Textrinum Antiquorum" quoted, v. 273, 274; vi. 98.
Yeast, iv. 26, 456.
Yew, iii, 360; v. 47.

Z.

Zachalias, vi. 468.
Zacynthus, i. 310.
Zama, i. 395; v. 477.
Zancle, i. 221.
Zara, i. 259.
Zarephthah, i. 435.
Zariaspa, ii. 30.
Zathene, vi. 457.
Zea, iv. 31.
Zebu, ii. 328.
Zeno, iv. 128.
Zenobia, i. 445.
Zenodotus, vi. 166, 167.
Zenothemis, vi. 467.
Zephyris, ii. 539.
Zephyrium, i. 210.
Zephyrus, i. 74; iv. 116.
Zethus, vi. 318, 319.
Zeugitana, i. 388.
Zeugma, i. 424, 444; vi. 210.
Zeus (fish), ii. 404.

Zeuxis, vi. 170, 250, 251, 252.
Zigæ, ii. 15.
Zimpiberi, iii. 112.
Zingiberi, iii. 112.
Zirconite, vi. 404.
Zizyphus, iii. 297.
Zmilampis, vi. 457.
Zmyrus, ii. 410.
Zodiac, signs of the, i. 17, 18, 26, 27, 44; an account of, iv. 78–108.
Zoëla, i. 172; iv. 133.
Zoilus, iii. 158.
Zones, the, i. 100—obliquity of, 102.
Zoöphytes, ii. 453, 465; iii. 211, 213
Zopissa, iii. 363; v. 19.
Zopyron, v. 55, 56.
Zopyrus, vi. 139.
Zoraniscæa, vi. 457.
Zoroaster, ii. 156; iv. 128; v. 422, 424; vi. 11, 437, 448—lived entirely upon cheese, iii. 85.
Zoster, iii. 210; v. 199.
Zythum, iv. 456.

## ERRATA.

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|---|---|---|---|
| Vol. I. | p. 455, l. 36, | *for* "agate," | *read* "jet." |
| — II. | — 537, — 39, | — "urine-egg," | — "wind-egg." |
| — III. | — 326, — 23, | — "nuts," | — "Walnuts." |
| — IV. | — 391, — 42, | — "on this," | — "on this subject, in B. xxv. c. 59." |

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